

AUG 20 1923

PERIODICAL ROOM
GENERAL LIBRARY
UNIVERSITY OF MICHIGAN

Railway Age

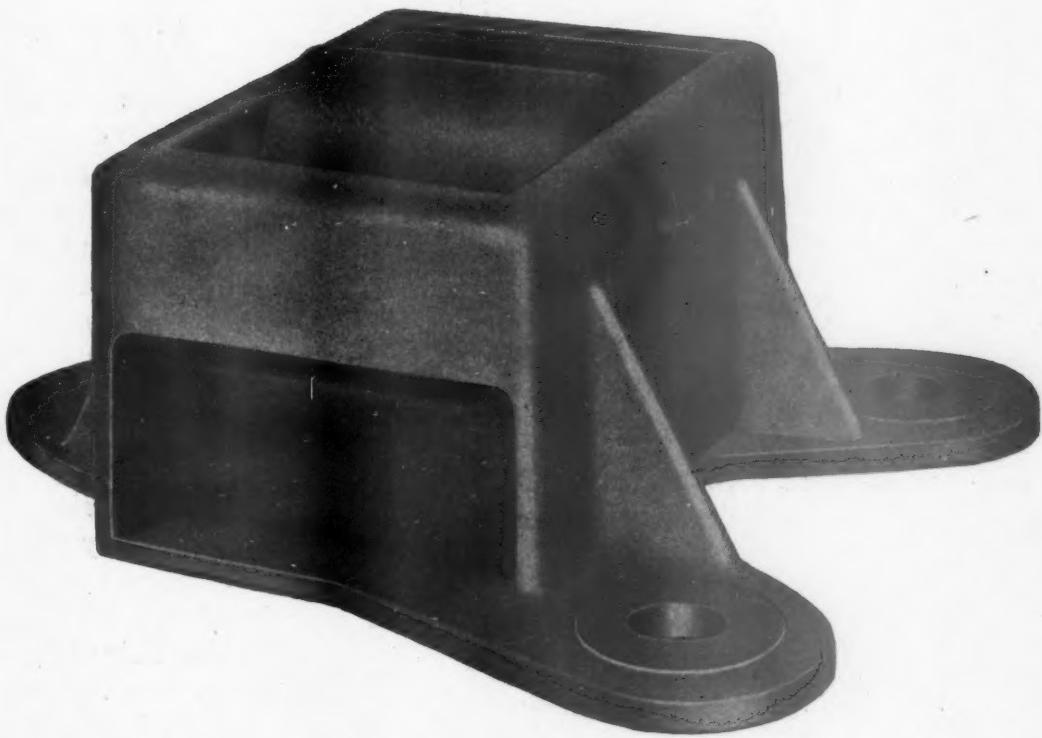
SECOND HALF OF 1923—No. 7

NEW YORK—AUGUST 18, 1923—CHICAGO

SIXTY-EIGHTH YEAR

Published Weekly by Simmons-Boardman Pub. Co., 30 Church St., New York, N. Y. Subscription Price U. S., Canada and Mexico, \$6.00; foreign countries (excepting daily editions), \$8.00, and \$10.00 a year including all dailies; single copies, 25c. Entered as second-class matter January 30, 1918, at the post office at New York, N. Y., under the act of March 3, 1879.

WINE SIDE BEARINGS



TRAVEL. The "WINE" Side Bearing has a rolling travel of 6 inches which is sufficient for all main line curves.

CLEARANCES. The "WINE" Side Bearing can be adjusted to close clearances on account of the roller maintaining the same height in all positions.

MATERIAL. All wearing parts in the "WINE" Side Bearing are made from high carbon steel, which insures the bearing a long life.

APPLICATION. The "WINE" Side Bearings can be applied to old as well as new cars. We have a great many designs in stock and are equipped to handle any order, either large or small, promptly.

THE WINE RAILWAY APPLIANCE COMPANY

People's Gas Bldg.
Chicago, Ill.

TOLEDO, OHIO

Grand Central Terminal
New York

Ingersoll-Rand Portable Pneumatic Grinders



No. 7 Grinder smoothing up faces of a large die

Specially built machines for grinding work

Not an adaptation of another type of pneumatic tool

The success of Ingersoll-Rand Pneumatic Grinders is based on the fact that they are specifically designed to meet the conditions of grinding work, and are machines in which *all* the troublesome features of older types have been eliminated.

They have light weight, great power, freedom from vibration and stand up under high speed operation. They contain 30% less parts per tool than any other pneumatic grinder.

This simplicity means few working parts, few replacements, little attention and machines that are easily understood and operated.

Ingersoll-Rand Company
11 Broadway, New York

Offices in all principal cities

For Canada refer Canadian
Ingersoll Rand Co., Limited,
260 St. James St., Montreal

290-PT

Ingersoll-Rand

EDITORIAL

The Table of Contents Will Be Found on Page 5 of the Advertising Section

The practice of buying equipment which is larger or heavier than absolutely necessary is one which is common to many, and perhaps most railroads.

Selecting Centrifugal Pumps

Generally speaking, it may be considered a good fault, but as applied to centrifugal pumps for water service, it has recently on a number of occasions been the cause of difficulty and of friction between departments. As applied to an induction motor alone, the practice means a rugged and dependable machine in which the advantages of high power factor have been sacrificed. As applied to a centrifugal pump, it is another matter. For example, a railroad recently had need for a pump which would deliver 150 gallons of water a minute against a 100-ft. head. To carry out the wish of the management to install rugged and dependable machinery, it was decided to buy a motor-driven pump designed to pump 150 gallons of water against a 120-ft. head. The pump was purchased and installed, but as soon as it was put in operation, the motor ran hot. At the 100-ft. head, the pump pumped so much water that the motor had more than its rated amount of work to do. This installation was simply a wrong application of a principle which is generally sound, but it is an error that can be made easily, particularly when the pump is not a new one purchased from the manufacturer, but is one which has been moved from another location.

Much has been written about the importance of railroad officers seizing every opportunity to inform the public regarding good railroad service and also pointing out the handicaps and difficulties which sometimes make the rendering of good service impossible.

The Right Attitude

That the right attitude toward public relations is being more generally realized by railroad men is indicated by the following instance: A supervisor of apprentices of a prominent eastern railroad was traveling in the west on a train which had to detour over another road. A delay of fully an hour was incurred before arrangements could be completed for the operation of the train over the foreign road and considerable impatience and criticism was expressed by many of the passengers. Finally, the supervisor of apprentices could stand it no longer and addressing himself to the chief critic said: "Do you realize what it means for one railroad to detour a train over a foreign road? Do you know that detour maps must be consulted to make sure that the clearances are right and the bridges strong enough to carry the train? Do you know that the division superintendent on the foreign road must be notified; also the chief dispatcher, who must secure a pilot to direct the train over the detour? If this train which we are on was not delayed long enough to take these precautionary safety measures, I wouldn't want to travel on it." The critic admitted his ignorance of conditions and was silenced. A car full of grumbling passengers saw the justice of the railroad man's remarks and doubtless had a higher appreciation than ever before of the efforts which railroads make to insure safety in train operation. Presumably this supervisor of apprentices had no interest in the road over which he was traveling. Probably he knew little about train dispatching, but he took

it upon himself to correct the false impression which was spreading among the passengers in his car. His example can well be followed by other railroad officers in all departments.

The facilities offered by the British railways for the education of employees are noteworthy, particularly since they

Employee Education in England

have not restricted their efforts in this direction to the training of apprentices in the mechanical department, but have extended them to practically all departments. Before the amalgamation of all the railways into four regional groups, which took place on January 1, each company had its own plan. Naturally certain modifications were to be expected as the result of the consolidation and one of the first of these to be announced is the extension of the educational facilities offered to railway clerks of the Great Northern Railway to employees of that class of the entire London & North Eastern group. The courses of instruction are, in every case, conducted by local colleges and universities at various important railway points. The educational institutions provide the instructors and arrange the details of the work to be covered. The railway pays the greater part of the tuition and arranges for the furnishing of text books at reduced prices. For the forthcoming school term instruction will be offered in four subjects, viz., railway operation, the law relating to the conveyance of freight and passengers, railway and commercial geography and railway economics. Arrangements have so far been made for courses at eleven points along the company's lines. Each course consists of 20 lectures of one hour each and prizes are awarded by the company varying from \$5 to \$25, according to the standing of the student, for all who successfully pass the examinations given at the conclusion of each course. The continuance of these courses and their extension to all the railways of the group indicate that they have been successful in giving the employees a broad knowledge of railway work and in fitting them for promotion.

Construction work now under way includes many items of additional main tracks, new or extended passing tracks, and

Put It Up to the Operating Department

yard enlargements, which were undertaken with the thought that the added facilities would aid greatly in handling the enormous fall freight movement which is expected to comprise a culmination of what has been the greatest year of railway transportation. Some of these new facilities have already been completed. Others await only the finishing touches to put them in shape for service, but these final details often entail certain interferences with the movement of trains, which, unless the conditions are squarely met, may serve to delay the final date of completion. There may be delays in the delivery of ballast or other track materials, the curtailment of work train service or a manifestation of reluctance on the part of the dispatchers to hold trains for the cutting in of new track sections, the replacement of bridge spans, etc. A situation of this nature is not only discouraging for the construction department but also works to the eventual

disadvantage of the operating department since it is sure to postpone the time when the new facilities can be used. To those construction officers who have met with this predicament, it will be of interest to note how the engineers on one road have placed this matter clearly before their operating officers. As soon as any unit of a construction project has reached a stage permitting of early completion, a well-defined schedule is prepared showing just what conditions must be met as a requisite for the completion of the work ready to turn it over to the operating department on a certain date. This information is then placed before the division superintendent, calling his attention to the fact that the additional main or passing tracks, etc., between certain mile posts can be placed in service on a certain date, providing specific conditions as outlined in the schedule are fulfilled by the operating department before that time. The potential advantages of the added facilities thus definitely offered will usually provide sufficient inducement for the operating department to subject itself to such temporary inconveniences as may result from a compliance with the conditions on which the completion of the work are contingent.

In the last few years the editors of this paper have received scores of letters from experienced railroad men on this continent asking to be put in touch with

American-Trained Men for Foreign Railways

railway officers in Latin America and the Orient who might use their services. In this time we have not received a single request from railway officers abroad asking us to help them secure American railway men for their service. The supply of American and Canadian railroad men who are willing and anxious to go abroad seems, from our experience, to be considerably greater than the demand. The purpose of this note is to apprise those who may be thinking of writing us for information concerning the opportunities in railroading abroad as to what the situation actually is. At the same time, be it known to any of our readers in foreign lands who may at some time wish to secure the services of American-trained railway officers or employees that, whatever their requirements, they will undoubtedly find plenty of experienced men on this continent able and anxious to fill them.

The views concerning the report of the joint New England railroad committee embodied in the statement addressed this week by the New Haven board of directors to the stockholders follow on

The New Haven Replies

the whole along about the line that one who understands the New England railroad situation would expect. The directors' statement will be regarded, we feel sure, as both fair and open minded. Those who prepared it were not given an easy task to perform, because there were some things in the report with which the New Haven directors could not help but agree, while there were others with which they could take nothing else but sharp issue. The committee presented a strong argument for New England consolidations as opposed to trunk line control of the New England roads. With this view the New Haven board could of course agree, because advocacy of a New England regional system has been presented on various recent occasions—notably in the Interstate Commerce Commission hearings—by the New Haven management. The report of the joint committee contained, on the other hand, some very strong statements concerning an alleged inefficiency of New Haven operation. These statements were such as to call for a reply and for criticism, and this reply and criticism will be found in a brief but ably prepared analysis in the direc-

tors' communication. The communication has accomplished the admirable result of expressing the New Haven's agreement with the suggestions concerning consolidations while at the same time the directors have constructively answered the criticisms of operating inefficiency without confusing the two issues. The views concerning the committee's far-reaching suggestions for a scaling down of New Haven capitalization and for state appointed trustee control of New Haven operations will be read with special interest. The suggestions, it will be noted, are not wholly condemned; there is shown rather an attitude of open-minded interest as to how the committee's suggestions might be ultimately worked out in actuality. The directors have, however, pointed out that the plan differs essentially from that worked out some years ago for the rehabilitation of the Boston Elevated Railway Company. The directors' statement has no air of finality. It will serve to continue the discussion of New England's serious railroad problem and is a valuable contribution to the discussion as it has thus far taken place.

Ship Early to Minimize Car Shortage

SHIPPERS and consumers of freight who would be adversely affected by a shortage of cars this fall will do well to heed the request being made by the Car Service Division of the American Railway Association that "nothing be left undone at this time to move the tonnages of those commodities which can be properly stocked by consumers during the next 30 days to meet their fall and winter requirements."

For the past two months or so the railroads have been able to furnish practically a 100 per cent car supply, while handling a record-breaking volume of business, but the time when they probably will not be able to do so is rapidly approaching. During June and July, while car loadings have been averaging over a million a week, there has been an average daily surplus of cars ranging from 41,000 to 84,000, but during the last two weeks of July the surplus has been going down again and for the week ended July 31 was 76,453, or less than one-half of one day's loading, and consisted very largely of box cars held in the grain originating territories for which there will soon be a demand.

The fact that the railroads have been able during recent weeks to move a greater volume of traffic than ever before practically without car shortage represents not only the results of the efforts of the railroads to increase their operating efficiency and to add new and repair old cars and locomotives, but also the co-operative efforts of the shippers to move as much freight as possible early in the year. Although there are doubtless many practical difficulties in the way of such a course, every car movement that can be made now instead of at the time when the demand for cars is usually at its heaviest will increase by that much the ability of the roads to serve the public at the time of the peak load and the benefits will redound to practically all users of freight cars. Each car gained in this way will have much more than a proportionate effect because freight can be handled more satisfactorily and with less liability of delay on account of congestion now than if the movement were deferred.

While a considerable part of the heavy traffic already experienced undoubtedly represents the response of shippers to the efforts to even out the distribution of freight throughout the year, present indications seem to point to continued increases in traffic and the more this same effort toward co-operation can be continued the better it will be for all concerned. Helping the railroads to minimize a probable car shortage will be found to pay far better than criticizing them for a shortage when it comes.

Concerning Employee Representation

MUCH is being said and written in these days about employee representation in industries in the United States. Not a few of the industrial leaders have come to the conclusion that the old-time paternalistic welfare work has outlived its usefulness. They contend that workers living in a country which has a republican form of government will not be satisfied by such measures, but feel themselves entitled to at least a voice in determining wages, working conditions and such things as concern their welfare.

It is interesting to note the rate at which this idea has been growing in recent years. The employee representation plan developed by the Colorado Fuel & Iron Company in 1915 was widely heralded as "a new departure in the United States." According to Walter Gordon Merritt, counsel for the League for Industrial Rights, in an article in the Annals of the Academy of Political and Social Science, September, 1922, this example found few if any imitators in the following three years. During 1918, however, over 100 such plans were inaugurated under government pressure by the National War Labor Board and the Shipbuilding Labor Adjustment Board. Most of these have been abandoned, probably because of the emergency conditions under which they were installed and the fact that there was not ample opportunity for trying them out fully. Outside of these government ventures, about 700 employee representation plans were voluntarily established in 1918, 1919 and 1920. During the next two years only about 20 or 25 plans were installed.

While no figures are available, the number of these plans which have been installed during the past year is undoubtedly very considerable. The 725 plans abovementioned, represented 400 different concerns (some companies operating scattered plants were listed as maintaining several plans), and probably covered one-tenth of the industrial employees in the United States in normal times.

In the railroad field only one large road, the Pennsylvania, has adopted an employee representation plan which applies to all of its employees. That plan, however, seems to be based upon sound and logical principles, even though it has been widely and severely criticized. A radical, forward step of this sort always meets with criticism and a considerable time is required to educate all concerned to its workings and advantages. In the case of the Pennsylvania, the unfortunate controversy with the striking shop employees and the Railroad Labor Board has done much to cloud the situation and cause misunderstandings. The unfortunate thing is that many people have come to believe that it is an effort to destroy the unions and prevent collective bargaining. It is significant, however, that the train service men are preserving their membership in the brotherhoods and supporting them, and at the same time functioning satisfactorily as Pennsylvania employees operating under the employee representation scheme. This is also true with other classes of employees who apparently find no difficulty in squaring its requirements with membership in their national labor union organizations.

It is significant and must not for a moment be forgotten that no scheme looking toward securing a greater co-operation on the part of the employees will be a success unless it is based on the right spirit on the part of all of those involved. The statement made by C. B. Seger, chairman of the board of directors of the United States Rubber Company, at a meeting of the Academy of Political Science, will bear repeating. "Employee representation should mean nothing more or less than a plan which provides systematic and regular contacts between employer and employee. Such a plan permits employer and employee to talk over matters of mutual

interest, whether it be hours of labor, working conditions, wages and production costs, or what not, in such manner as to constitute a definite procedure by which their conclusions may be made effective. *The success of any such effort, however, is determined by the sincerity with which it is entered into by both management and employees.*" (The italics are ours).

Good wages and working conditions are not enough; the employee wants also recognition as an individual. The exact manner in which this recognition is made is not nearly so important, however, as the spirit behind the whole thing. Arthur Nash, of the A. Nash Company at Cincinnati, has been widely heralded because of his incorporating the Golden Rule into his business. The author of an article, entitled, "Yes, He Has No Common Sense," in *Collier's* for July 28, apparently found that so far as methods and practices were concerned, there was little to differentiate the Nash factory from other industrial works. In fact, he made this statement: "There is not even any complex system of welfare work to spy on the employees and say how they shall spend their time after working hours. There are no time clocks here; but otherwise it is just like other factories, except for a spirit which the others lack." Mr. Nash, in answering the question whether his scheme would work with aliens, made this answer: "So long as we look upon people as alien the best we can hope to do is to bargain with them. When we see them as brothers and sisters the problem vanishes. We don't try to bargain any longer; we just see how much we can do and the law of love does the rest."

It is not the purpose to suggest that scientific measures should not be adopted to develop a finer spirit of co-operation by the railway managements and employees, nor is it intended to convey the idea that railroad managements should not seek far and wide to discover those methods and practices which have given good results in other industries. These things are invaluable. It is intended rather to emphasize the fact that such methods and practices to be successful, must be inspired and coupled with the right sort of spirit—a spirit which has a high regard for the value and importance of the individual and which is in accord with the Golden Rule in its best sense.

Southern Pacific Litigation

THERE has been a tendency in recent months to a fuller realization of the power and prestige attained by the Interstate Commerce Commission over a long period of years through the numberless decisions of the courts relating to the commission's activities. The commission, those who have drawn attention to this trend of development point out, has gained through adverse and favorable decisions alike. The gain through favorable decisions has come naturally from the sanction given to commission policies. Gain through adverse decisions has not always followed, but it has resulted, nevertheless, in large numbers of cases because so frequently an adverse opinion by the courts has resulted in new legislation giving the commission wider scope and greater power. It is against this sort of a background that one can best realize the importance of the latest, and what will also presumably prove to be the last step in the long drawn out Southern Pacific-Central Pacific litigation. This step is the decision of Attorney-General Daugherty, as approved by President Coolidge, not to press further the suit first instituted by the government in 1914 to break up the Southern Pacific-Central Pacific combination. This combination was held by the Supreme Court to be in violation of the Sherman law. It was held by the Interstate Commerce Commission, which laid down certain definite conditions as to its

continuance, to be in the public interest and in keeping with the transportation act. This decision of the commission was approved by the United States district court at St. Paul and the step which the attorney-general has decided not to take was an appeal from this last court to the Supreme Court of the United States.

In its simplest terms what the government has now decided is that in matters of railway consolidation the rule shall not be that of the old Sherman anti-trust law but that of the new transportation act. This action by the Department of Justice may or may not embody a belief that Congress or the people of this country have decided that approval has been granted for consolidations which was hitherto withheld under the terms of the Sherman law. But it does mean that consolidations are to be favored insofar as they are carried out with the approval of the Interstate Commerce Commission granted according to the terms of the transportation act. The government thus declines to question further the right of action of the commission in a clean-cut case where the two acts—the Sherman law and the transportation act—were practically in direct conflict. This is the latest example of court sanction of commission procedure and power and as a result of it the commission's prestige is accordingly furthered and strengthened.

Increasing the Capacity of a Line

NOTHING is doing more to convince thinking business men that the Transportation Act is entitled to further trial as it now stands than the service which the railways are rendering at the present time. Nothing will do more to kill hostile legislation next winter than the continuation of this record of performance through the remainder of the year. For the first time in their history the roads are now handling a revenue freight traffic regularly exceeding 1,000,000 cars loaded per week without a car shortage; in fact, they have a net surplus of more than 60,000 cars. With all indications pointing to a continued increase in the amount of traffic offered from week to week until a crest of 15 to 20 per cent above the present figure in October, the necessity for continued effort on the part of every railway officer is evident. If the roads are to handle this peak traffic with the same absence of congestion or delay that characterizes the movement of the present record-breaking business, they will have offered the most positive proof of the efficiency of private management and of the manner in which it can rise to an emergency. The achievement of this result will call for the freest exchange of ideas regarding those measures which have been found to contribute to increased capacity. Railway operation is a developing art in which the last word has not yet been written or the last improvement made. New ideas are constantly being tried on one road or another. It has been through the free exchange of information regarding these methods that railroading has developed to its present high plane. It will be through the continued interchange of these ideas, particularly at the present time, that the capacity of the roads will be still further increased.

It is for the purpose of offering a channel for the exchange of the ideas which are being found of value in moving the present heavy traffic that we have announced a contest on "Means of Increasing the Capacity of a Line." Contributions to this contest are limited to discussions of those methods which contemplate increasing the capacity through more intensive operation, to the exclusion of such relief as may be secured by increased facilities. To stimulate interest prizes of \$50 and \$35 will be awarded the first and second best papers received respectively, the awards being based on the practicability of the methods described in meeting the present conditions. Special consideration will be

given to descriptions of methods which have been found effective and of the results secured therefrom. All papers should be addressed to the editor of the *Railway Age*, 608 South Dearborn street, Chicago, and should be sent in promptly as they must be received by August 25 to be considered by the judges.

New Books and Special Articles Of Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books

The Battlefields and War Graves of France and Flanders and How to Visit Them. Issued by Southern Railway, England. Railroad and steamship routes and rates and other information. Especially addressed to persons of limited means. 21 p. Published by McCorquodale & Co., London.

Report on the Formation of Transverse Fissures in Steel Rails and Their Prevalence on Certain Railroads, by U. S. Interstate Commerce Commission. A comprehensive report prepared by James E. Howard, engineer-physicist. 169 p. Published by Government Printing Office, Washington, D. C.

Periodical Articles

And Now They'll Fly by Night, by Joseph Brinker. While admitting the supremacy of railroads in mail moving, the author describes some of the latest developments in air mail service as a "best helper" to the railroads. *Collier's*, August 18, 1923, p. 20-21.

The Fifth International Conference of American States. Summary of proceedings of 5th Pan-American conferences. Section 5—Transportation—of Official Agenda, page 114; personnel of committee on communications, page 157; conventions concluded regarding intercontinental and international air, rail, motor, and water transport, pages 167-169. *Bulletin of the Pan American Union*, August, 1923.

In Icy Labrador, by Wilfred Grenfell. Railway and industrial needs, pages 827-829. *Current History*, August, 1923, p. 823-829.

Railroad Gross and Net Earnings for June. Analysis of 1923 compared with 1922. *Commercial & Financial Chronicle*, August 11, 1923, p. 598-601.

A Silent Man Tackles Nation's Hardest Job, by George MacAdam. An estimate of President Coolidge, including, in a box at the bottom of the page, Mr. Coolidge's pronouncements on government ownership and other questions. *New York Times*, August 12, 1923, section 7, page 1.

The Unbroken Chain, by Irvin S. Cobb. After prominence in headlines, editorials and cartoons, the grade-crossing accident enters fiction. *Cosmopolitan*, September, 1923, p. 26-32, 122, 124.

Wants Central States Case Reopened. National Sand and Gravel Association begins action for lower rates. Full text of petition. *National Sand and Gravel Bulletin*, August, 1923, p. 19, 27-38.

We Bit Off More Than We Can Chew, by Edward N. Hurley. Another argument for decentralization, with freight traffic congestion as Exhibit A. *Collier's*, August 11, 1923, p. 13-14.

The Year's Leading Earners Among the Railroads, by A. T. Miller. Discusses 21 roads. *Magazine of Wall Street*, August 4, 1923, p. 611.

Letters to the Editor

[The RAILWAY AGE welcomes letters from its readers and especially those containing constructive suggestions for improvements in the railway field. Short letters—about 250 words—are particularly appreciated. The editors do not hold themselves responsible for facts or opinions expressed.]

Enhancing Employees' Interests

BANGOR, Maine.

TO THE EDITOR:

A discontented employee or a dissatisfied customer make a poor advertisement for any business. What is it that causes so much discontent among the employees of so many large corporations? Especially has this kind of spirit been much in evidence in the railroad and coal industries throughout recent years, though none seem able to keep entirely free from its manifestations for any great length of time. The question is one that has been and continues to be the fruitful subject of many an investigation and much comment.

It goes without saying that an insufficient wage, meaning one that will not maintain the average family in health and comfort, is bound to be a trouble breeder. The fact is so self-evident that the issue cannot be gainsaid and discussion of it is here needless. But in many cases the real reason for discontent is a something deeper than the matter of wages, and we find it existent where good wages are paid. I refer to the unsatisfied cravings of ambition.

We are apt to deny the average man his deserved credit for being ambitious. Only occasionally do we hear the term applied in discussing the abilities and merits of ordinary laboring men but it is nevertheless true that ambition, or the creative instinct, is present in the makeup of every normal person and continues to be a dominating influence in life until a forced treadmill existence with its utter hopelessness of outlook dims and at last extinguishes the flame. No, it is not always a question of wages.

We read some very plain statements regarding the reasons why college trained young men steer clear of the railroad business and it is doubtful if any better one can be advanced than that they consider it an ambition-killer. If a canvass of private enterprises could be carried out, especially of those embracing the various branches of retail trade, it would reveal the fact that many a bright young man—college trained and otherwise—has entered his particular line of endeavor with the fixed intention of both earning and learning all that he can from it so that he may some day be capable of holding a good position with the firm or, failing that through lack of opportunity—and right here is the important point—start a like business of his own. To be sure, he may fail in that also, but the incentive is there and helps to keep that vital creative instinct alive, and many do not fail but succeed in establishing themselves so that they realize a better income and a greater degree of personal independence than could ever have been theirs had they continued as wage-earners. But to the young man entering the railroad or other large industry of like public nature the avenue leading to a like business of his own is practically forever closed. Generally the best that he may hope for is a minor official position. If he becomes discouraged because of such outlook in the railway field and leaves it for some other, that industry loses him and suffers to just the extent of the difference between his ability and experience and that of a more ordinary type of man that may take his place on the payroll.

It has been taken as axiomatic that there is always room at the top, but that point would be more densely populated

if the avenues of advancement could be thrown open to every man capable of following them and the necessary inducements held forth to keep him steadfastly therein. The railroad business is getting pretty thoroughly "schedulized" and seniority is the watchword. This last is not meant as a stab against the principle of collective bargaining, but an inflexible schedule that allows the executive little or no latitude in dealing with separate persons upon a basis of individual merit when occasion demands it is a severe handicap to proper organization. Many an efficient railway employee, discouraged by the Methuselah-like longevity of those immediately ahead of him, has fled from present evils to others that he know not of and wherein he may have found his position but very little improved—but the point is that he fled and probably could have been kept—to the mutual advantage of both himself and his employer, had his immediate superior been allowed ordinary freedom in exercising tact and liberality. It is just such type of employee that the railroads need to keep hold of, and they will sooner or later have to adopt a program that will enable them to do so.

At best, many must remain in the treadmill of routine work, both because they are needed there and because they lack capability for anything else. Upon them the burden of actual production falls, and to such that type of existence must be made more easily bearable by making working conditions as cheerful and attractive as reasonably may be. Good wages, old-age and disability pensions, life insurance and the like are great incentives to the contented and loyal service so necessary to the prosperity of the employer. That the railroads are doing so much along this line through personnel and welfare departments and otherwise is indicative of better things. The ideal of private profit as the principal motive in industry is gradually giving ground before that of unselfish service that shall provide the greatest good to the larger number. In this we must not be deceived; that which may need reforming will somehow be reformed. The process is even now going on. Unfair practices, wherever found, must go. They are going. Employees and executives in every line of industry are morally bound to work together toward these ends. There is no escape from the responsibility arising through an ever increasingly educated and enlightened public consciousness. Petty differences and minor technicalities must be forgotten and all things considered with a view to the general good and so must be ushered in the better day that is to be.

W. A. R.

Differs with Mr. Howard As to Transverse Fissures

EL PASO, Texas.

TO THE EDITOR:

The discussion of transverse fissures in rails by James E. Howard, page 210 of your August 4 issue, is a remarkably positive document in support of a theory unsupported by satisfactory evidence that the fissure or its incipiency is not in the rail when laid, but is made in its incipiency and its development by the rolling wheel loads on the rail.

Mr. Howard says that the number of transverse fissures is greatest on those roads where the traffic is heaviest and appears to conclude from that that the theory above described is correct. If the fissures or their incipiences are in the rail when laid, it is to be expected, and it is entirely normal, that the maximum number of them would be revealed through breakages through the fissures on track having maximum density of traffic.

Is Mr. Howard's theory supported by observation of the fact, if it exists, that the greater number of rail failures through transverse fissures observed to occur on track carry-

ing maximum traffic are uniformly distributed throughout the length of such track and as between all kinds of rail on that track? The theory needs the support of observation.

On the El Paso & Southwestern, a line of comparatively light tonnage but approaching the maximum in speed and axle loads, we have had only one definite instance of pronounced trouble with the transverse fissures. This occurred on 25 miles of 85-lb. open hearth Bethlehem rail laid in 1908 and removed in 1921 on account of continued rail failures, all of which showed the transverse fissure normally located in the center of the head. The first failure occurred shortly after the rail was laid, derailing a light special train running 50 miles an hour, the rail breaking into six pieces and all fractures showing the fissure. The last failure was a few months before the removal of the rail began. Except as the rails removed may have had incipient or developed transverse fissures of which there was no indication on the surface, they were all in excellent condition and adequate for continued service. All of this rail was laid on tangent except for three short curves, each of one degree or less.

East and west of and connecting to this 85-lb. rail, 85-lb. rail was laid on the east in 1909 and 85-lb. rail on the west in 1912. From those dates until the 85-lb. rail failing through transverse fissures was removed from the track all of the 85-lb. rail on that district carried identically the same traffic but no trouble from transverse fissures developed in the rail laid in 1909 and 1912. The latter rail is still in the track and in good condition.

J. L. CAMPBELL,
Chief Engineer, El Paso & Southwestern.

Systematizing Clerical Work —the "Unit Method"

AMARILLO, Texas.

TO THE EDITOR:

The theories advanced by Victor Cahalin in his letter relative to systematizing and standardizing the work of railroad clerical forces as published in the *Railway Age* of July 7, are valuable and, if subjected to practical application and carried to a successful consummation, they will undoubtedly prove of value from the standpoint of both economical operation and service efficiency. By "service efficiency" is meant the proper performance of the various departmental duties incidental to station and yard office work, both from an operating basis and also as required in the interest of public service. A standardization of clerical duties and force assignments, particularly as applicable to stations and terminals, which will reflect a relative comparison of efficiency is probably the only method of securing desired results and obviating the possibility of paying for eight hours' time rather than for eight hours' work.

While there is no difficulty in standardizing the work in accounting or other clerical offices where the duties are of a routine nature, it is a difficult matter to adopt a standard for the amount of force necessary to handle a given amount of work and apply it generally at all stations or terminals, owing to the varying conditions under which work is handled at different points.

A means of standardizing station clerical force requirements in accordance with the volume of work performed and securing the maximum of operating economy compatible with service efficiency has been the subject of a considerable amount of study for some time past as a local proposition on the Northern District, Western Lines of the Atchison, Topeka & Santa Fe, under the jurisdiction of C. H. Bristol, assistant general manager, La Junta, Colorado. Experiments are now being made for determining station efficiency by means of a comparative unit basis as applicable to clerical and platform forces.

The object of this so-called "Station Unit" system is to determine the amount of clerical and other forces necessary for the economical operation of stations and to ascertain the efficiency existing at a station as compared either with previous periods or with other stations.

The desired result is to be obtained by the application of an established time valuation to each of the principal or general departmental work units composing station and terminal operations, a unit being equivalent to one man hour. The number of units so shown as creditable to or earned at a station is compared monthly with the number of man hours worked as shown on the payroll and the existing efficiency is determined by the result. The departmental operations incidental to station service are classified into general or principal operations and, by a similar classification of payroll hours, the relative percentage of efficiency in any department can be readily and accurately ascertained.

I do not wish to impose upon your space with details of operation, which are fully explained in a complete and detailed working memorandum compiled to govern the handling of this method. I will, however, state that, as operating conditions are not similar at all stations thereby requiring more work at some points than at others in order to accomplish a given result, flexibility in comparison will be obtained by the adoption of arbitrary unit allowances made where exceptional duties or peculiar working conditions affect the comparative amount of work possible to be accomplished with a given amount of force. The amount of clerical work devolving upon agents or others in compilation of special reports for the operation of the "Unit Method" is negligible.

The potential advantages of this method, if the experiment proves successful, are briefly as follows:

1. The Unit Method as applied furnishes a concrete means of determining the exact amount of work performed in all departments at any station by months and the amount of force required, thereby enabling division superintendents and agents to regulate their forces in accordance with the volume of actual work performed.

2. Enables the elimination of improper methods of work or unnecessary station operations which are disclosed by unit valuations.

3. Demonstrates the relative efficiency of one station as compared with another and also the comparative efficiency of employees at same station.

4. Induces a closer study of terminal force conditions and requirements by supervisory officials and agents who, by this method, can readily determine the relative economic and service efficiency at any station.

5. The accounting necessary to determine efficiency on a unit basis is reduced to a minimum.

6. Will develop the amount of idle time necessary at the smaller stations in order to maintain fixed service, thereby furnishing statistical information which may prove valuable.

At the present time, this method is in an experimental stage and subject to modifications and change but it is not probable, if it is put into permanent operation, that much deviation will be necessary from its fundamental working principles. The idea is to effect a method of standardizing the amount of clerical expenditure in ratio to the volume of business handled, or rather, in ratio to the amount of work actually performed. With a view of preventing an excess of economy exercising a detrimental effect on service, a standard form of station inspection report has been installed as an accessory to the Unit Method.

I wish to call attention to this experiment as, if successful, it appears to provide a means of developing the standardization which Mr. Cahalin considers essential and it also constitutes a practical application of the theories which he advances in his letter.

W.M. BALFOUR,
General Transportation Inspector, Western Lines, A. T. & S. F.



The West Roanoke Yard at Night Looking West Toward the Hump from a Point Between Tower No. 4 and Tower No. 5

Norfolk & Western Installs Lights in 15 Yards

System of Flood Lighting Peculiarly Suited to Requirements of Classification Yards

THE NORFOLK & WESTERN has just completed the installation of flood lighting systems in 15 yards, including all main line yards. Conditions in the yards vary considerably with the traffic requirements and the size and the shape of the yard, but the type of lighting used is adaptable to all circumstances.

The purpose of the installations on the Norfolk & West-

cause they show clearly the location of track, the position of switches and the location of cars in the yard.

The lighting system consists essentially of flood lighting units mounted on platforms on steel towers 70 ft. high. There are from four to eight light units or lamps or projectors, as they are referred to commercially, on each tower, the number of projectors depending upon the size of the area to be lighted. The towers are placed at intervals through the yard, the distance between the towers depending largely upon the number of lights on each tower and the convenience of finding places to put the towers. In some cases, buildings are so located that it has been possible to install a group of lighting units on the roof of a building, coal docks probably affording the best opportunity and this has been done at several points.

Steel Towers

The steel towers used for supporting the flood lighting units are of Bates design and were chosen because they occupy little space, are strong, durable and self-supporting without guys. One of the vertical members of the tower is fitted with steps so that it can be climbed easily by a maintainer. The platform and railing at the top are safety features and make it possible for the maintainer to make lamp renewals easily and to do a real job of cleaning the lighting units when that is necessary.

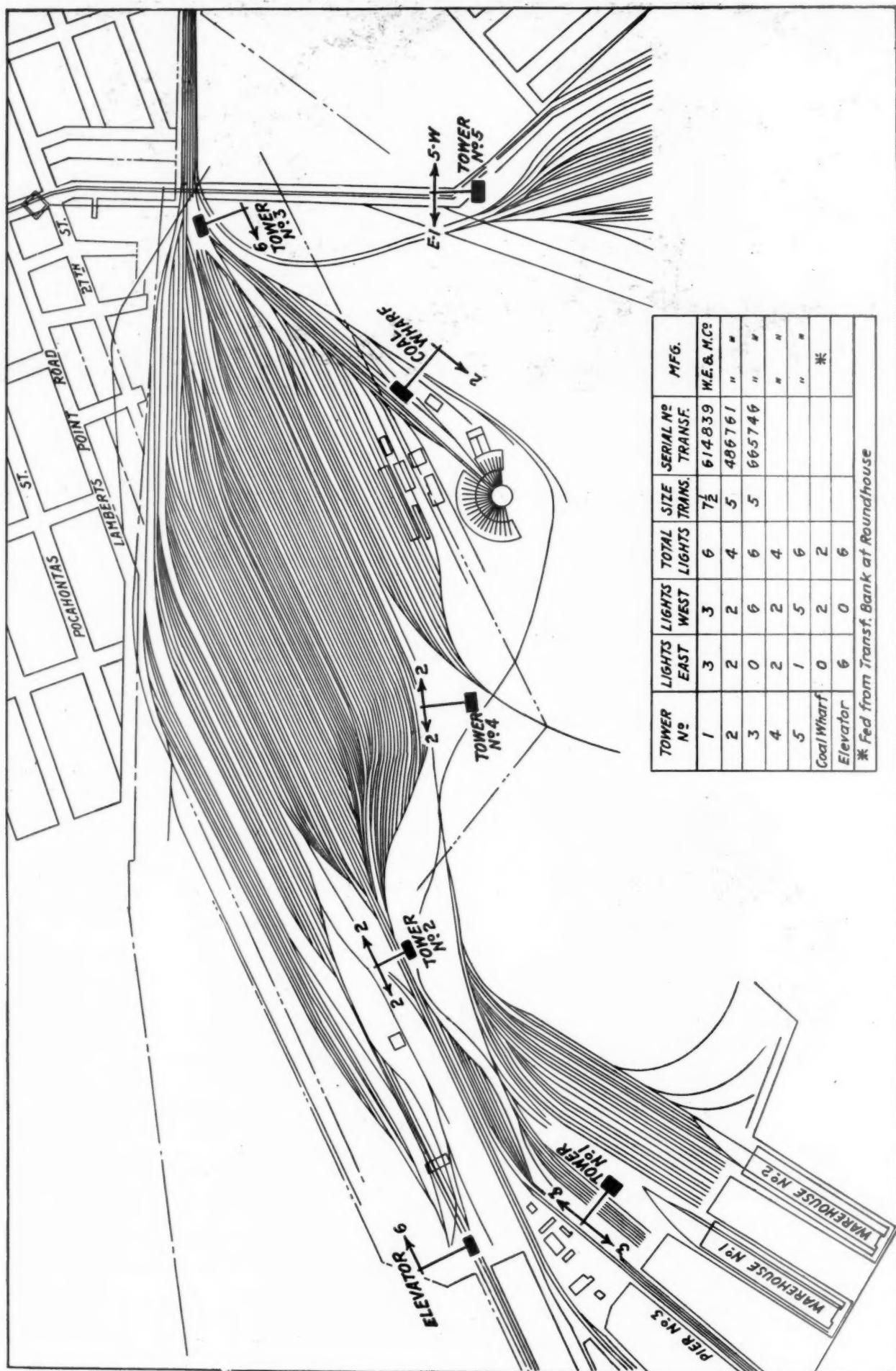
Each tower stands on a rectangular, concrete base and is bolted to this base with eight 1-in. bolts, each of which is 7 ft. 3 in. long and extends almost completely through the concrete base. The dimensions of the base are 6 ft. by 7 ft. by 8 ft. deep. The edges which are above ground are beveled to prevent chipping. This base is so designed that if the tower and base were placed on the surface of the ground, instead of being imbedded, the tower would not be tipped over by a 50-mile wind.

Electric power is brought to each tower at 2,300 volts and a transformer mounted on the tower is used to change this to 110 volts. All wiring on the tower is carried in rigid metal

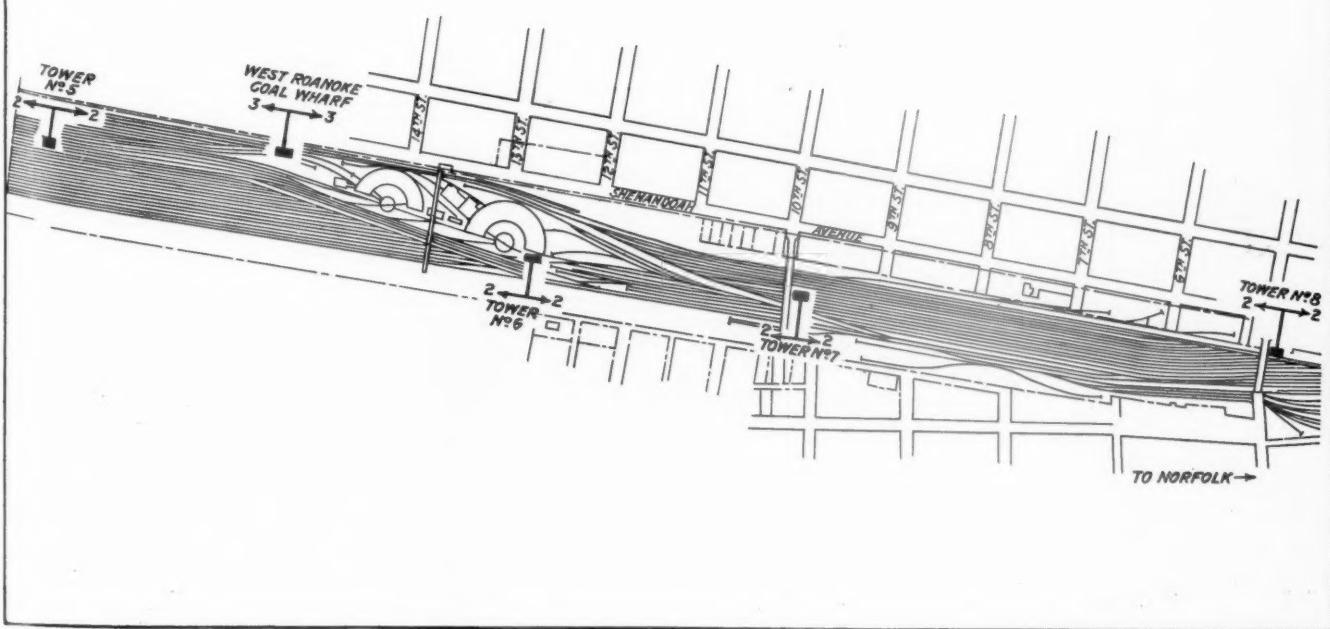
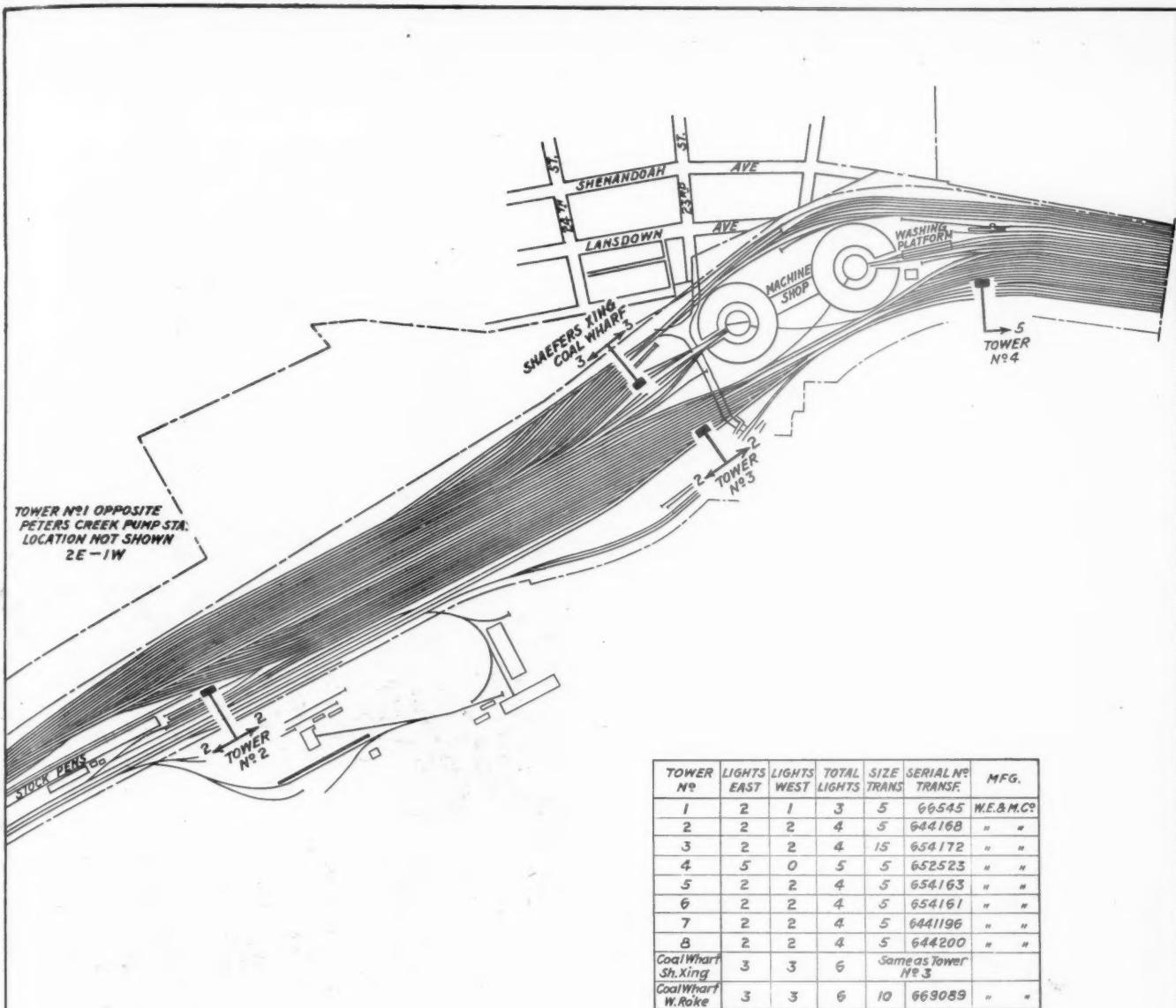


One of the Lighting Units

ern as well as on other roads, is to speed up night operations, minimize the damage due to rough handling, decrease the loss from theft and promote safety. The lighting systems as installed are peculiarly adapted to the lighting needs of yards in general and classification yards in particular be-



Lambert's Point Yard of the Norfolk & Western Showing Location of Lighting Towers and Direction of Light Beams



West Roanoke Yards of the Norfolk & Western Showing Location of Lighting Towers and Direction of Light Beams

conduit and weather-proof boxes are used for protecting the switches and fuses. The transformer and emergency switch are located at a point half-way up the tower and the lighting units are placed on the top.

Lighting Units

The flood light units or projectors are made of 16 gage, copper-bearing, lead-coated sheet steel and spot welded construction throughout. Each projector contains a 1,000-watt, Type C Westinghouse mazda lamp and the projector housing is ventilated by holes in the bottom of the barrel and door, covered with perforated brass screening, providing ventilation both in front of the reflector and behind it. The inside of the flood light barrel is painted with aluminum bronze to provide diffuse illumination which is effective at short distances from the flood light location; this lighting being distinguished from the illumination obtained from the flood light beam proper which is generally used with effective ranges varying from 800 to 1,600 ft. The upper casting which houses the lamp socket and focusing device is arranged to provide adequate ventilation between the housing proper and the hinged cover, the cover overlapping the housing sufficiently to provide protection from the weather. The hole in the top of the flood light barrel through which the lamp projects is provided with a weather ring casting with a flange



A Lighting Tower Supporting Four Units

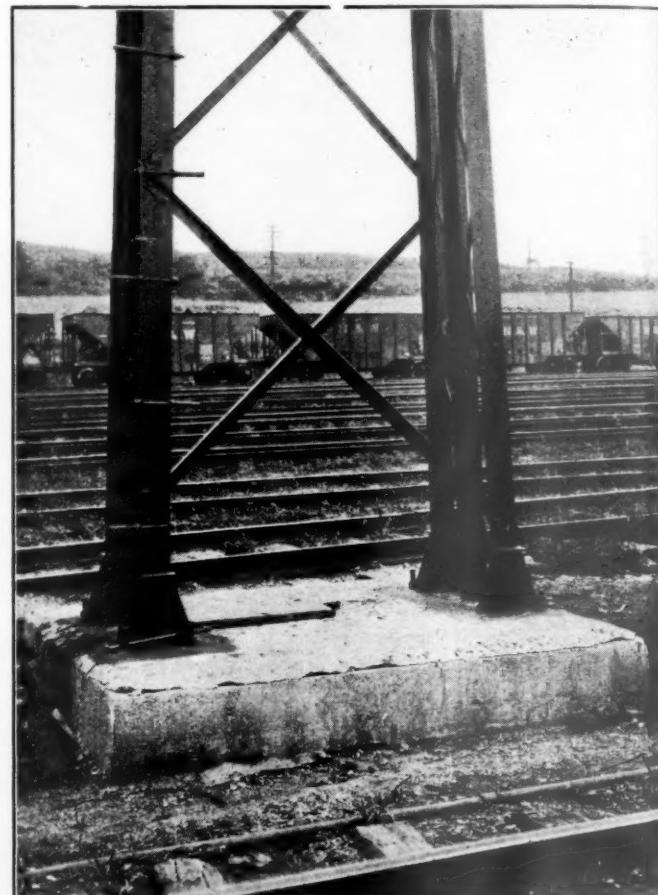
of suitable height to still further protect the lamp from moisture.

The projectors are equipped with Mogul sockets and a focusing device which will accommodate lamps from 750 to 1,500-watt sizes with a PS-bulb. The door has a gasket of rubber tubing and the front glass is mounted in a similar fashion. Leads to the lamp socket have fire and weather-proof insulation. The reflector is 14 in. in diameter and is parabolic, having a 4 3/4-in. focal length.

The bases of the units are made of cast iron. A hinged construction makes it possible to tilt and direct the unit as desired.

Results

Originally the practice in the hump and gravity classification yards was to hang a red light on the up-grade end of each track of cars. This was superseded by placing individual lighting units on poles along the edge of the yard and at such points between the tracks where it was possible to place them. The new flood lighting system requires a small number of steel towers, but only about half as many poles as required by the individual unit lighting system and



Lower Portion of a Lighting Tower Showing Top of Concrete Base and Steps for Climbing Tower

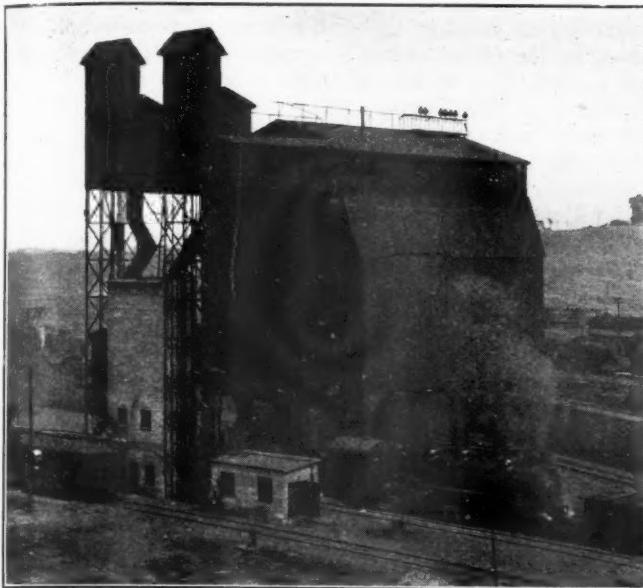
such poles as are used, are only for the purpose of carrying feeder wires. The cost of the system of flood light is probably about the same as the cost of a system of individual pendant lights; the flood lighting, however, provides a more uniform light which is most effective. The power consumption of the flood light method is less as the light distribution is better and the maintenance cost is less since there are fewer units to maintain and these units are bunched so that it is necessary to climb only one pole to clean or renew lamps in a number of units.

The lighting is peculiarly effective because the light is thrown horizontally and thus diffused over all of the area to be covered. The tracks are the most apparent things in the yard by virtue of the fact that the reflection of the light from their surface can be seen for a long distance. The system also provides a light by means of which the ends of cars standing in the yard are clearly outlined.

The effectiveness of the system as installed on the Norfolk & Western is probably best shown by expressions from the men who work with it. Practically without exception, all of the switchmen and car-riders have expressed their hearty endorsement. The road men are equally enthusiastic because the system makes it possible for them to see exactly

where they are going through the yard and to detect any obstruction, such as a car which may have been placed too close to a switch.

The light is surprisingly uniform and from the stand-point of speeding up operation is proving a great help, be-



A Conveniently Located Coal Dock Provides a Mounting for a Group of Lights and Saves a Tower

cause the car-riders can see exactly how far they must go before reaching the end of the track of cars. This increased speed of operation is still more apparent where it is necessary for a locomotive to move a cut of cars into one of the tracks against the grade. Although the cars already standing

man or car-rider to determine both the speed and distance almost as accurately as is possible in the day time. As a preventive against pilferage, flood lighting is regarded as being of great value.

When first installed, objections were raised in several cases because of the assumed blinding effect of the lights. This proved to be largely a result of curiosity. The men, unaccustomed to the brightness, stared at the lights and, of course, suffered a temporary impairment of vision. They soon discovered, however, that if they gave their attention to their work rather than to the light, they had no difficulty. Now the placing of dimmers on the switch engine headlights has been suggested because there is plenty of light in the yards for the engineman to see ahead and the light from the locomotive headlight tends to be a hindrance rather than a help.

The 15 lighting installations on the Norfolk & Western were planned and installed by C. H. Quinn, chief electrical engineer. Most of them have been in operation for two or three months. The following tabulation shows the installations that have been made:

Point	No. of Towers	No. of Projectors
Lamberts Point	5	32
Crewe	7	28
Lynchburg	3	10
West Roanoke	8	43
East Radford	4	15
Shenandoah	4	14
Bristol	1	7
Bluefield	8	43
Norton	2	7
Williamson	6	34
Kenova	2	8
Portsmouth	10	50
Columbus	6	26
Clare	2	5
Hagerstown	2	4
Totals	70	326



The West Roanoke Yard at Night Looking West from Tower No. 6

on the track are a considerable distance away, the switchman and engineman are able to see them and to maintain a relatively high speed instead of groping or feeling their way in the dark. In this connection, it has been pointed out by the claim department that the greatest amount of damage to equipment is caused by imperfect judgment of speed and distance. The flood lights make it possible for the switch-

As a whole, the lighting systems can be considered a valuable aid and productive of increased efficiency. While in this instance, the Norfolk & Western has simply adapted a practice which came into prominence in other industrial fields during the war, it has made its installations complete and has built for the future in a manner characteristic of the company.

Shippers Urged to Send Freight Early

WASHINGTON, D. C.

A LETTER urging shippers and consumers to continue and augment, during the next 30 days, their efforts to level off the peak of railroad traffic during the coming fall by anticipating shipments wherever possible, has been addressed to representatives of national trade organizations who attended a conference with the Car Service Division of the American Railway Association on August 2, by Donald D. Conn, manager of the public relations section of the Car Service Division. After thanking them for their attendance and co-operation Mr. Conn says in part:

"As you are aware, the railroads are now moving the greatest volume of freight in the history of the country. This is being done practically without car shortage due—first, to the increased efficiency of operation; second, installation of new and better facilities; third, active co-operation of industry and agriculture in promoting the most efficient use of transportation facilities, and in moving a substantial tonnage in anticipation of future requirements.

"From the best economic analysis of business conditions which we are able to obtain, not only by closely following the trend of car loading, and commodity prices, but also through intimate contact with shippers through the regional advisory boards, and such gatherings which you attended, the measure of the large railroad tonnage being offered is due not only to a general increase in business activity, but also, in part, to the efforts which have been put forth in some industries to stock in advance in anticipation of future needs. Some time ago the American Railway Association, and also the Secretary of Commerce, requested enlistment and co-operation with the railroads of every factor of agriculture and industry with the view of moving such tonnages as could be properly stored in the spring and summer months, thereby alleviating the volume of business which the railroads might otherwise be asked to transport during the peak fall movement of seasonal crops. For instance, the cement industry, enlisting the co-operation of their customers, have moved 60,000 more cars during the first half of the year than were transported during the first half of 1922, which means that practically that many more cars are available to meet coming demands during subsequent months of this year. Likewise consumers have given more attention to the stocking of coal in anticipation of future needs. This general tendency has been followed in many lines of industry.

"In spite of the progress made, however, due consideration should be given to the fact that with few exceptions there is no great inventory throughout the country, and all indications seem to point to continued business activity and heavy car loadings. The railroads are vitally interested in discharging their responsibilities this year in the most adequate manner possible, but to accomplish this end, and minimize car shortage during the peak fall movement, nothing should be left undone at this time to move the tonnages of those commodities which can be properly stocked by consumers during the next 30 days to meet their fall and winter requirements. This is especially true of coal, lumber, sand, gravel and other building materials, and those commodities the need of which has already been set out in definite future programs. It is especially important that due consideration be given to the adjustment of the good roads program in the light of the available railroad service and facilities. It is my understanding that this program is now behind its schedule.

"You will appreciate, I am sure, that the average daily loading is running in excess of 171,000 cars, and that the surplus of cars mentioned above constitutes less than one-half of one day's loading, which would be very quickly taken

up through any local or territorial increase in the volume of traffic offered. It should also be understood that the majority of the box cars now shown as surplus are cars which are being held in the grain originating territories, and which cars will be absorbed within the next few weeks as the grain movement becomes heavier. The fact that there is no appreciable car shortage today should not serve as a basis for lessening the efforts to move as much as possible before the fall period. The volume of traffic now being handled is far in excess of that tonnage which the Car Service Division originally anticipated would be offered the railroads. To avoid car shortage this fall shippers and consumers must continue and augment, during the next 30 days, their efforts to level off the peak of shipments during the coming fall.

"Therefore, the purpose of this communication is to reaffirm the discussions that took place at the meeting August 2, 1923. If the manufacturer will advise his customers of this condition, and if consumers will anticipate their future needs and place their orders now for *immediate* shipment, it will aid greatly in insuring a more substantial measure of transportation for the movement of those commodities which are entirely seasonal.

"I should be very glad if you would advise me of what action you take in the premises."

General Electric Gets New Order from Paulista Ry.

ORDERS for new equipment totaling about \$1,000,000 for electrifying 35 additional miles of the Paulista Railway, Brazil, have just been placed with the International General Electric Company. This extension constitutes part of the additional electrification contemplated when the first contract with the International General Electric Company was closed in 1920, providing for 28 miles of double-track electrification, and will bring the total electrified mileage up to 63 miles, starting at Jundiahy and extending north to Tatu. This is approximately half the total electrified mileage originally planned and further extensions are expected.

Included in the order, just announced, are five 62-ton 3,000-volt d.c. switching locomotives, a complete sub-station of 4,500 kw. ultimate capacity with motor-generator sets, step-down transformers, switchboards, switch gear and other auxiliary equipment and overhead line material and transmission for the extension.

The original contract called for 12 electric locomotives (eight freight and four passenger) a 4,500 kw. sub-station and transmission for the first 28 miles. This equipment went into service about October, 1921; and has been operating with success since that time. It runs between Jundiahy and Campinas.

Scarcity of coal and the necessity of using wasteful wood burning locomotives, coupled with steep grades, has been the principal factor in the decision to electrify; the heavy traffic has also been an important factor—in 1918 275,000,000 ton-miles were handled on the railway between Jundiahy and Cordiero.

The portion already electrified has indicated substantial savings, while with the completion of the extension more than double the tonnage formerly handled is expected to be hauled with ease. The Paulista is the most important railroad in South America which has thus far adopted the direct current system for electrification. Power is being supplied at 88,000 volts 60 cycles by the Sao Paulo Light & Power Company which will be converted at the railway's sub-station for train operation.

Do Peak Traffic Months Pay for Themselves?

Interesting Query Advanced as to Whether Fall Net Income Suffices to Compensate for "Capacity Costs"

By J. M. Clark
University of Chicago

RAILROAD RATE-MAKING in this country has grown up on the practice of "charging what the traffic will bear." The theory of "constant and variable costs" has been used chiefly to justify this practice and to give it the benefit of the doubt, and only secondarily to attempt to set quantitative limits on it. Where such limits have been thought of, the minimum has been conceived as "variable cost," using the formula which states that half the operating expenses are variable and everything else constant; or else an attempt has been made to trace the direct operating expenses attributable to the traffic in question, and set this as a minimum. This question of the minimum below which discrimination should not go has gained increased practical and legal importance since the Interstate Commerce Commission laid down the rule that relief from the long-and-short-haul clause should be granted only on condition (among other things) that the lower rates were in themselves remunerative. Under this rule, how much discrimination is justified? This calls for a study of the way in which costs respond to changes in traffic.

The Peak Months Are a Burden

These changes are partly seasonal and partly cyclical, with an underlying steady growth. In the first place, railroading is a markedly seasonal industry. The "peak load" comes in September and October, for most roads, and with great regularity. Since earnings vary with traffic and costs vary far less, this makes the net earnings much greater in these months of heavy traffic; in fact, the figures published by the Interstate Commerce Commission indicate that September and October are typically about twice as profitable as January and February, when traffic is light. I wish here to suggest that this appearance is deceptive, for the reason that these peak months require the roads to provide capacity, both in rolling stock, in tracks, yards and structures, and in their organization and personnel, which is partly idle during most of the year. As a result, the peak months are really responsible for part of the "constant costs" which go on during the other months. And if these costs are charged against the peak months, it will turn their apparent profit into a loss. There is strong reason for believing that the September-October traffic, instead of partially carrying the other months, as it appears to do, is really carried by them, and is a substantial burden upon them.

These monthly fluctuations of traffic produce no change at all in investment and taxes, while operating expenses vary only about half as much as traffic does. This statement is based on a considerable statistical study, which need not be reproduced here, as it agrees with the common estimate of railroad authorities. If a road requires 30 cents out of every dollar earned to cover taxes and return on investment, and 70 cents to cover operating expenses, then a 10 per cent increase in traffic will increase its total burdens, not 10 per cent, but 5 per cent of 70 per cent or $3\frac{1}{2}$ per cent, provided the road has capacity to handle it. If it yields any more than this $3\frac{1}{2}$ per cent it will pay, taking capacity for granted.

What Is Necessary to Increase Capacity?

But if a road has to provide for a growth of traffic amounting to 30 per cent in 5 years, with the same autumn peak as

at present, it must increase its capacity 30 per cent, and its *operating expenses will now follow a different law, increasing more than half as fast as the traffic*. The exact ratio will depend on the density of traffic, but indications are that, for a road with fairly large density, total burdens for investment and operating expenses will increase more nearly three-quarter as fast as traffic, instead of only $35/100$ as fast. For large roads which must expand their terminals in the face of city congestion and high land values, the ratio would probably be considerably higher than this.

Taking these figures as our starting-point, we may ask the question: How much must the September-October traffic earn in order to cover the costs for which it is economically responsible? Also, how much must traffic with an average seasonal distribution earn in order to pay its true costs?

To set the minimum at half the operating expenses—as is often done—is clearly wrong, in the light of the foregoing estimates. This would be applicable only if a road made seasonal rates to stimulate off-season business only—a type of discrimination which is practically non-existent. To disregard investment costs and indirect operating expenses is equally wrong, in the typical case, for the typical case involves a general rate policy, which, if it is consistently followed, will call forth considerable volumes of traffic, which will in turn involve an increase both in indirect operating expenses and in investment. What should be reckoned is the long-run differential cost of growth of traffic, taking for granted that traffic will grow for an indefinite time and in very considerable amounts, and that the railroad which has brought this traffic into being cannot afterwards refuse to handle it, or hamstring it by raising rates to an extent which would cripple the shippers.

The Element of Traffic Density

The amount of discrimination which would be possible without making the lowest rates absolutely unremunerative would depend upon the density of traffic on the road in question. The minimum remunerative rate would not vary markedly between roads of dense, and roads of sparse traffic, but average cost varies greatly, and hence the relation of the minimum to the average would vary. For roads of very dense traffic, whose costs are below the average, there would be very little room for discrimination on the principle of "charging what the traffic will bear." For roads of sparse traffic and higher average costs, it would be reasonable to charge a higher average rate, if they could get it, so that in their case the range between the minimum rate and the average would be considerably greater. For roads of sparse traffic, then, the lowest remunerative rate might be as low as half the average cost, including interest and taxes. This would, of course, leave a very wide margin between the highest and the lowest rates, in case such roads attempted to "charge what the traffic would bear" in the literal sense of exacting the utmost from traffic which would stand high rates.

Seasonal Fluctuation

So far we have been going on the assumption that the traffic is average traffic. But how about its seasonal char-

acter? Does it come chiefly in the busy season, is it evenly distributed or—best of all—does it concentrate in the partly idle season when it can be carried by the regular force and the regular equipment which the “peak” traffic makes necessary in any case?¹ What is the relative cost of peak and off-peak traffic? The crucial point here is the locating of responsibility for the “constant expenses,” and in this there is large latitude for judgment, but an example may serve to make plainer the nature of the case on which judgment has to be exercised. This example will deal with freight haulage costs alone, taking for granted for the moment that expenses have been separated as between passengers and freight, and as between terminal and haulage outlays of each class.

Let us suppose a freight traffic of 2,000,000,000 ton-miles per year with total haulage costs of \$6,000,000 or 3 mills per ton-mile, including \$4,400,000 for operating expenses and \$1,600,000 for interest and taxes on the investment assigned to freight haulage. Operating expenses then come to 2.2 mills per ton-mile, and interest and taxes to 0.8 mills. Of these expenses only half of 2.2 mills, or 1.1 mills, are variable with seasonal changes of traffic, but in the long run the differential cost of added business will come to about 2.25 mills ($\frac{3}{4}$ of 3 mills) assuming that this is a road of fairly dense traffic. This 2.25 mills includes the equivalent of the 1.1 mills of short-run variable costs and a residuum of 1.15 mills per ton-mile which, for lack of a better name, may be called “capacity costs.” They vary in the long run, but not from month to month, and are governed more by the capacity of the road than by its momentary output.

“Capacity Costs”

These “capacity costs” should be fully borne by the traffic which makes them necessary and all traffic should bear its share, but what is the share of a given class of traffic? If the seasonal peak on this road is of the usual magnitude, it will amount to about 185,000,000 ton-miles for the heaviest month, but since September and October are so nearly equal, it is fair to think of the peak as lasting two months. Now, strictly speaking, these two months are chargeable with the entire “capacity cost” for the year. A 5 per cent increase in the peak traffic necessitates a 5 per cent increase in capacity and nearly that much in capacity costs, while an increase or decrease in the off-peak traffic will have no effect on them, whatever.

The total capacity costs come to \$2,300,000, and distributed over a two-months peak they would come to 6.22 mills per ton-mile of traffic during the two heaviest months. Thus the lowest remunerative charge (to cover haulage costs only) for September or October traffic would be 6.22 mills plus 1.1 mills or 7.32 mills per ton-mile—more than twice the average cost for the whole year. Terminal costs would presumably behave in similar fashion, with the result that the road not only could not afford to cut rates to increase its peak traffic, but would lose money on that traffic unless it yields considerably more than twice the average rate! If this basis of calculation is correct, most roads are losing money on their heaviest months’ business.

This is on the assumption that the “capacity costs” are governed entirely by the demand of these heaviest months, and not at all by the traffic offered the rest of the year. This, however, is probably not strictly true. If the off-season traffic were very small, the roads would not provide as good quality of roadbed and equipment for the peak traffic as they now do. These capacity costs represent, not merely a surplus of cars which lies absolutely idle in the dull season,

but improved roadbed and better facilities, which mean lower operating costs throughout the year. Even the surplus of cars is in part a relative matter: It makes it easier to furnish a shipper promptly with just the type and size of car he calls for and so is not wholly useless. Thus it is not really correct to charge the entire capacity cost to the peak alone; and the question how much of it to charge is the point at which this example ceases to be a mere matter of arithmetic and becomes a matter of judgment.

Let us say that half the capacity costs, or at the very least a third, are fairly chargeable against September and October and the rest against the other months of the year. On the half-and-half basis, the differential cost of the September-October traffic would be 4.11 mills per ton-mile, while the off-season traffic would cost 1.734 mills. If only one-third of the capacity costs were charged to the peak months, the peak traffic would cost 3.22 mills and the off-peak traffic 1.95 mills. Thus, on the most favorable possible assumption, the long-run differential cost of traffic coming during the peak months is more than the average unit cost of all traffic, including a *pro rata* share of interest and taxes. This corroborates the inference that, at average rates, the roads actually lose money on their months of heaviest traffic instead of making their largest profits out of those months, as they appear to do on the face of the accounts.

The Matter of Rates

Should this fact find expression in the rates? Common sense says that it should be taken account of in some way or other. Should rates in general be made higher in September and October than in the other months, so that the traffic during these months should earn its fair share of the costs of unused capacity which go on during the rest of the year? The answer to this question is not simple nor clear. Certainly such a step should not be taken without thorough study of the burdens it would impose on industry and the extent to which it would be economical for industry to escape these burdens by shipping at other times. For this is not merely a railroad problem: It is a part of the larger problem of the seasonal character of industry in general, and it will not be solved until industry as a whole takes effective steps to estimate the costs of seasonal irregularities and to reduce them wherever possible. Seasonal rates on railroads may be justified wherever they show promise of producing actual results as a part of some such comprehensive policy. Taken by themselves and imposed indiscriminately, they might do more harm than good.

A compromise measure would be to make no seasonal changes in rates, but to distinguish between those commodities which tend to aggravate the seasonal cycle and those which tend to improve it, charging the latter higher rates the year round, so that each class of traffic will pay for any idle overhead it may occasion. This appears legitimate enough, but it does not do anything definite to make any given shipper ship at more convenient times. Thus it neglects the chief point which must underlie a scientific rate system.

In conclusion, there is no panacea to be offered, but the whole situation deserves earnest study by all concerned, shippers as well as carriers.

¹ Theoretically, there are two peaks to consider, the peak for the road as a whole and the peak for the special kind of rolling stock which this traffic requires. In the case of freight, however, the curves of demand for box cars, open-top cars, flat cars, stock cars and even refrigerator cars, are enough alike so that one might fairly ignore their differences for most purposes. (See diagrams of car shortages and surpluses covering 1919-21, *Railway Age*, January 7, 1922, p. 17). Passenger train equipment, however, is a different story, and has its own distinct peak.

THE STANDARD RAILWAY SANITARY CODE has been adopted by the Missouri State Board of Health and will apply to all steam and electric roads operated in the state. The code provides for restriction of travel by diseased persons, use of certified drinking water on trains, the construction of approved water coolers and adequate care of such containers, cleaning and disinfecting of cars, provision for sanitary maintenance of cars in service, and sanitary maintenance of railway stations and construction camps.

Powerful Gasoline Motor Driven Train

Sykes Company Demonstrates Two-Car Train Driven by
245 Hp. Engine and Seating 74 Passengers

THE HEAVY-DUTY gasoline motor driven coach, capable of hauling one or more trailers, presents a problem far more difficult of solution than that which the smaller equipment has had to meet. In the field which could be covered by relatively light weight and light powered

weak for the hard duties of railroad service, high operating and maintenance costs, or to some feature not yet perfected the evolution of such equipment has been a slow one. For these reasons the new equipment which has been built by The Sykes Company, Winthrop Harbor, Ill., is of special interest.

The first train, which has been delivered to the Chicago Great Western, consists of a motor coach having a baggage compartment 16 ft. long and a passenger compartment 21 ft. long provided with seats for 30 passengers, together with a trailer coach 33 ft. long inside provided with seats for 44 passengers. Both cars have toilet compartments. The motor coach is 51 ft. 7 in. long over-all, with a body 44 ft. 7 in. long outside, and 8 ft. 3 1/4 in. wide at the eaves. The height over-all is 12 ft. 2 1/2 in. The trailer coach is 39 ft. 4 in. long over-all and 31 ft. 2 in., long inside the passenger compartment. The inside width of both cars is 7 ft. 9 1/2 in., the height from floor to ceiling is 8 ft. and the elevation of the floor above the top of the rails is 3 ft. 7 in. The distance between truck centers is 33 ft. 7 1/2 in. on the motor car and 23 ft. on the trailer. The wheelbase of the trucks is 5 ft. 2 in. and the cars are adapted to pass around curves of 100 ft. radius.

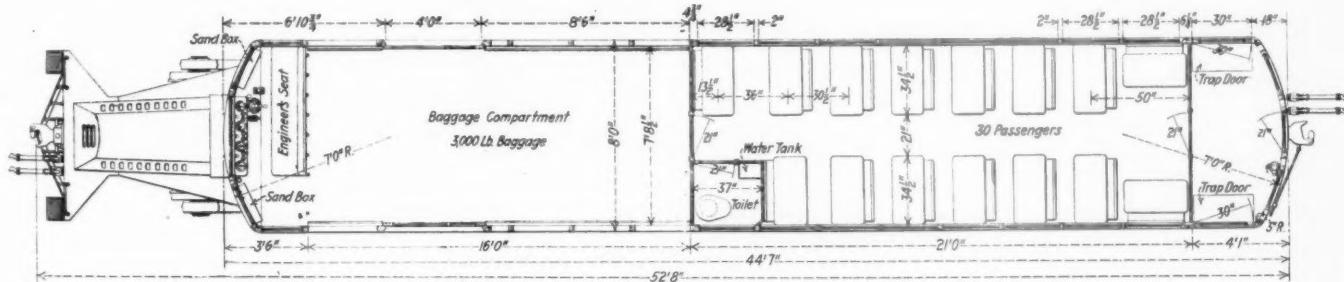
The light weight of the motor coach is approximately 30,000 lb. and of the trailer coach 21,000 lb. As the train provides seats for 74 passengers this is at the rate of 690 lb. dead weight per passenger seat. In addition, the 16-ft. baggage compartment has a normal capacity for 3,000 lb. of baggage.

The cars are driven by a Sterling six-cylinder gasoline motor with cylinders, 5 3/4 in. bore by 6 3/4 in. stroke, developing 180 hp. at 1,250 r.p.m. and 245 hp. at 1,750 r.p.m. Electric starting and lighting systems are provided, the motor being direct driven from the engine and of a capacity suffi-

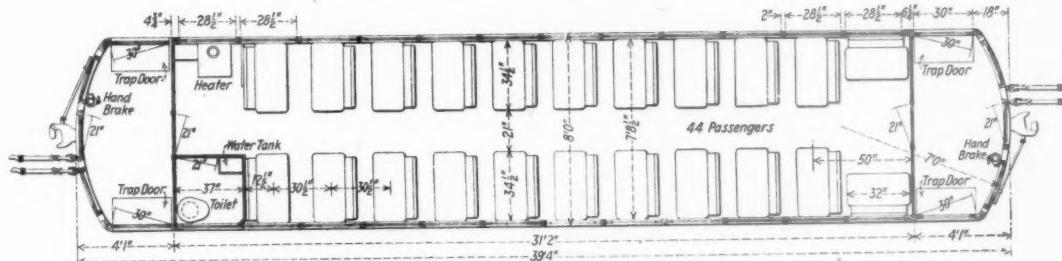


Sykes Motor and Trailer Car Seats 74 Passengers and Carries 3,000 lb. of Baggage

equipment a number of designs are available at the present time, several of which have demonstrated their ability to do the work required in regular service. There exists, however, in the minds of many railroad men a feeling that there



Floor Plan of Motor Coach Showing Baggage and Passenger Compartments



The Trailer Coach Seats 44 Passengers

is a need and a real field for larger and more powerful motor car units. In response to this expressed desire several designs have already been offered but owing to a lack of driving power, some weakness in transmission or gearing, cars too

cient to carry all the lights of a two-car train, including the headlight, and to keep the lighting batteries charged to capacity at all times.

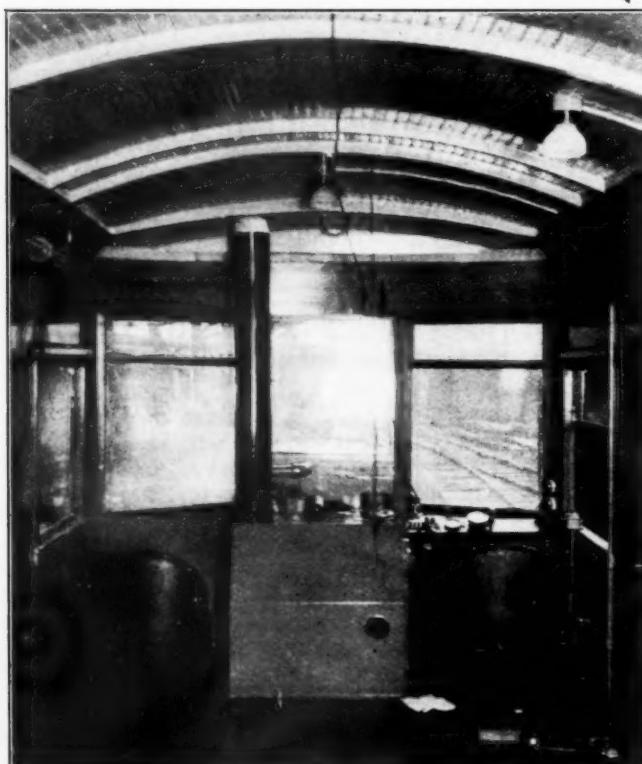
The clutch is of the Hale-Shaw type, of high capacity and

runs in oil. It was developed for ordnance work by the U. S. army and also was used for submarine chasers. The transmission is of a special jaw-clutch type built by the Cotta Transmission Corporation and direct connected to a



The Engine Is Capable of Developing 245 Horsepower

transfer gear case. The speeds provided for are 8.9, 15.1, 28.7 and 43 m.p.h. ahead and 6 and 15 m.p.h. in reverse. The drive is connected by bevel gears to the inside axle of each truck.



Driving Compartment of the Motor Car

An interesting and important feature of the design of this car is the use of a sub-frame suspended by springs from the main channels of the motor coach. The transmission, transfer gear box and air compressor are mounted on this sub-frame. This method of suspension eliminates gear noises and vibrations. Moreover the entire driving mechanism may be dismounted and another set mounted to replace it in two hours' time. The motor and entire power plant are so fitted that they can be detached, removed and replaced in the space of an hour. By carrying spare units and replacing when repairs are required, the work can be performed economically and the car kept in service while the driving mechanism is being overhauled. These points are typical of the attention that has been given to the details of design which should tend to keep the costs of maintenance at a minimum.

The front and rear trucks are of standard bolster construction with semi-elliptic springs under the bolster and



Interior of Motor Coach Looking Toward the Baggage Compartment

with swinging suspension cradles. The wheelbase is 5 ft. 2 in. and the wheels 30 in. in diameter with cast steel centers and rolled steel tires. The axles are of chrome-nickel steel, heat treated, $3\frac{1}{8}$ in. in diameter and have $3\frac{1}{2}$ in. journals with Stafford roller bearings.

In addition to hand brakes the cars are equipped with Westinghouse semi-automatic air brakes. The air compressor has two cylinders and a capacity of 10 cu. ft. per min. There are two main reservoirs, 18 in. by 72 in. The foundation brake rigging includes brake shoes of the type commonly used in railroad service. The cars are equipped with M.C.B. automatic couplers at the standard height above the rails.

In the preliminary runs on the Chicago Great Western the train, about two-thirds loaded, attained a speed of 63 m.p.h. on the level and was driven over a one per cent grade, seven miles long, the summit being passed at a speed of 47.4 m.p.h. The throttle was never fully opened yet there was at all times an apparent surplus of power.

Illinois Central Cut-off Line Approved by I.C.C.

Protests Made by State of Illinois and Communities on Line Between Edgewood and Fulton

THE INTERSTATE COMMERCE COMMISSION on August 14 made public its report and order on the application filed on January 26 by the Southern Illinois & Kentucky, the Chicago, St. Louis & New Orleans and the Illinois Central, authorizing the construction of a new line from Edgewood, Ill., to Paducah, Ky., with a branch from Akin, Ill., to a connection with the Benton Southern to be operated by the Illinois Central. The application was granted over the protests of certain communities in Illinois and Kentucky now served by the Illinois Central's Cairo line between Edgewood and Fulton, Ky., who objected that traffic would be diverted to the new line. Hearings had been held before the commission and arguments were presented in June. A description of the proposed cut-off line, which with the branch makes a total of 172.7 miles of new line, was published in the *Railway Age* of January 27, 1923, page 278. The following is from the commission's report:

"The Cairo line passes through Odin, Centralia, Tamaroa, DuQuoin, Carbondale, Makanda, Cobden, Anna, Dongola, Ullin, Villa Ridge, and Mounds, Ill. Traffic over this line has been and is steadily growing in volume and, therefore, it is desirable either that its capacity be enlarged or that a portion of the traffic be diverted to some other line. There has been a rapid increase in the Central company's coal traffic from the Southern Illinois field, most of which moves westwardly from the mines over the Eldorado line to DuQuoin or to Carbondale and thence northwardly to Edgewood and beyond. The Eldorado line has heavy limiting grades and the Central company estimates that it would cost \$1,982,000 to reduce them to 0.3 per cent and properly revise the line. A study convinced the Central company that it would be economical to build a single-track low grade line from Edgewood southerly to a connection with the Eldorado line. This line would be about 70 miles long. The Central company estimates that it could be constructed with 0.3 per cent limiting grades at a cost of approximately \$7,000,000. It would save some 25 miles on the haul of coal from Franklin county to the north, avoid hauling it westwardly over the heavy grades of the Eldorado line and remove most of the coal traffic from the Cairo line between Fulton and Carbondale or DuQuoin. It would consist of that portion of the Illinois company's proposed line between Edgewood and Akin, together with the proposed Akin branch.

"There has also been a heavy increase in traffic over the single-track line now operated by the Central company between Paducah and Fulton, due chiefly to the development of the west Kentucky coal fields. This line has limiting grades of 1.1 per cent and maximum curves of 7 degrees. Another track being needed to provide for this growing traffic, the Central company concluded that the most practical method of obtaining it, and at the same time reducing grades and curvature, is to build on a new location west of the existing line, where 0.3 per cent limiting grades and maximum curves of two degrees can be obtained at a cost of \$3,660,000, as estimated by it. This projected line is the one which the Kentucky company seeks authority to construct. It would reduce total curvature from 1214 to 180 degrees and aggregate rise and fall from 715 to 328 feet.

"The projection of these two lines led to the present plan, which embraces and would connect them, affording a continuous line from Edgewood to Fulton, hereinafter referred to as the cut-off. The Central company estimates that the additional expenditure involved—that is, the cost of building

WASHINGTON, D. C.

from Akin to Metropolis—would be less than \$6,000,000, and that the cost of the entire cut-off, single-tracked and including the Akin branch, would be \$16,635,000. About 3 miles of the cut-off, including the Ohio river crossing, would be over the rails of the Paducah & Illinois Railroad Company and operated in its name. It is proposed to divert some through freight traffic from the Cairo line to the cut-off.

"The Central company lacks corporate capacity to construct the cut-off and for that reason recently brought about the incorporation of the Illinois company. The latter company, if independent, undoubtedly would have charter power to construct the Illinois portion of the cut-off, and the protestants do not assert that it would not. But they contend that the Central company is endeavoring to do indirectly through its agent, the Illinois company, that which, concededly, it could not do directly and that, therefore, the Illinois company must be held to be without corporate capacity to construct its proposed line.

"The protestants contend that the Central company is without corporate capacity to purchase or hold the capital stock of the Illinois company, or to purchase, lease or acquire running rights over, or operate, the proposed line either of that company or of the Kentucky company. And they further contend that the granting of the authority sought would amount to an unlawful invasion of the rights of the states of Illinois and Kentucky under the federal constitution to prescribe the powers of corporations created by them respectively; and that, therefore and because of the alleged lack of corporate capacity on the part of each of the applicants as above stated, the application should be denied and the proceeding dismissed.

"These contentions cannot prevail. In our consideration of applications under paragraph (18) of section 1 of the interstate commerce act we are concerned primarily with the requirements of public convenience and necessity. In proceedings under paragraph (2) of section 5 of the act, the questions to be considered by us are chiefly those which involve the public interest. If it clearly appeared in a proceeding of either character that a corporate applicant lacked capacity to do the thing for which it sought authority, we might withhold our authorization. But this is not such a case. We are of the opinion that each of the applicants herein has ample power to exercise the authority which it seeks.

"The protestants contend, also, that the application should be denied because the Central company cannot purchase or hold the capital stock of the Illinois company, or purchase, lease or acquire running rights over, or operate, its proposed line, without violating a provision of the Illinois constitution which prohibits any railroad corporation from consolidating its stock, property or franchises with any other railroad corporation owning a parallel or competing line, or without violating an act of the Illinois legislature, approved June 30, 1885, which contains a proviso that no railroad corporation shall be permitted to purchase any railroad which is a parallel or competing line with any line owned or operated by it. It is urged by the applicants that, for various reasons, these provisions are inapplicable to the situation here presented. We think they are inapplicable but it is not our thought that our power to grant the application is dependent thereon.

"It is contended further by the protestants that the application should be denied because the project is, in effect, one

for the substitution of a new line in place of a portion of the charter lines which the Central company is obliged to maintain and operate. This contention necessarily rests upon the assumption that a portion of the charter lines is to be abandoned—an assumption directly opposed to the uncontradicted evidence.

"The protestants also contend that the application should be denied because the diversion of traffic from the Cairo line to the cut-off would deprive the state of Illinois of revenue under the 7 per cent charter clause, and because what is proposed would violate a provision of the Illinois constitution to the effect that the Central company's obligation under that clause shall never be released, altered, or diminished by legislative or other authority. It is not our thought that the provision referred to bars our action to grant the application.

"It is represented that the business of the Central company has so greatly increased that there is a pressing, immediate necessity for improved and additional facilities to handle it efficiently and economically; that the Cairo line has heavier grades than the lines operated by the Central company north or south thereof, as well as objectionable curvature; that it would be more economical to increase the capacity and efficiency of the system by building the cut-off to carry a part of the through business than to make the grade reductions and other improvements which would otherwise be necessary on the Cairo line, and that it is not possible to create on the present route a line over which through business could be transported as economically as over the cut-off. These representations we think warranted.

"Compared with the Cairo line the cut-off would have the following advantages: Reduction of distance from 190.6 to 168.8 miles; reduction of limiting grade from 0.8 to 0.3 per cent; reduction of aggregate rise and fall from 2,049 to 1,349 feet; reduction of maximum curve from 5 to 2 degrees; and reduction of total curvature from 3,393 to 613 degrees.

"The applicants submit an estimate of the saving to be effected by the operation of the cut-off as compared with operation of the Cairo line. This estimate is based on the estimated volume of traffic in 1925 (when it is assumed the cut-off would be completed), and contemplates that 450 cars each way, making 5 through freight trains in each direction, would be diverted to the cut-off daily, and that in addition 300 cars of coal now hauled to Carbondale or DuQuoin would be moved daily to Akin and thence northward over the cut-off. On this basis the applicants estimate the annual saving in operating expenses on diverted business to be \$1,518,642. They estimate increases in the Central company's net railway operating income as follows: First year, \$976,996; second year, \$1,312,244; third year, \$1,509,535; fourth year, \$1,561,786; fifth year, \$1,515,616; and annually thereafter, \$1,399,718.

"The opposition of the communities along the Cairo line appears to arise from a belief that the Cairo line would become of secondary importance and the service thereon be impaired. The cut-off would handle some through freight business, the coal traffic and such local business as might originate thereon. The application states that the Central company does not intend to interfere with the business of communities on the Cairo line, which will continue to give ample service as a main line. Traffic between St. Louis and the South will continue to move as at present. Diversion of passenger traffic has not been considered. Through freight and coal traffic which would be diverted has been stated above and could not be materially increased without overtaxing the capacity of the cut-off. There is evidence that, if the traffic continues to grow in the future as rapidly as it has in the past, the Cairo line would be as busy immediately after opening the cut-off in 1925 as it was in 1920 and that it would be as busy by 1929 as it is now. As far as the rural districts in Illinois are concerned, the most important product requiring rapid and sure transportation is fruit. The fruit is moved, except in rare instances, by trains starting at

Mounds, not by through trains from the South. It is conceded that the Central company has given satisfactory service in the past; and in view of the importance of the traffic local to the Cairo line and the expected increase in through traffic, there is no reason to believe that the objecting communities would be permanently injured.

"Construction of the cut-off would be financed by the Central company which would advance the necessary funds to the Illinois and Kentucky companies. It is not now proposed to issue securities except that \$40,000 capital stock of the Illinois company is to be bought at par and held by the Central company. An application by the Illinois company for authority to issue this stock has been made to us."

Commissioner Eastman dissented.

Virginian Asks Rehearing on Proposed Extension

WASHINGTON, D. C.

THE VIRGINIAN RAILWAY has filed a petition with the Interstate Commerce Commission asking for a rehearing of the proceeding in which the commission denied its application for a certificate authorizing the construction of an extension, 1.19 miles in length, of its Guyandot river branch. No hearing was held on the original application and the railroad wishes to introduce evidence which it hopes will result in setting aside the denial, which was based on the ground that the opening of new coal mines would mean that the already inadequate coal car supply would be made more inadequate.

The commission's finding of fact as to the inadequacy of petitioner's car supply, the petition says, is believed erroneous in that it is based on grossly inflated mine ratings and on orders for cars which are believed to have been in excess of needs, does not take into account the handicap on petitioner's operations of the shop strike and its effects, and gives no weight to the fact that more than half of the mines on its allotment sheets are supplied with cars by other carriers. Also the company has ordered 1,500 additional coal cars and 15 additional locomotives.

"Nothing in the petitioner's record, in the files of the commission or elsewhere," the petition asserts, "justifies an assumption that it will neglect its duty to provide facilities for transporting the traffic offered it. The statements of the commission's report," it adds, "seem to justify attributing to the report the conclusions as a matter of law that Paragraph 18 of Section 1 of the Interstate Commerce Act authorizes the commission to make an economic survey of the production and marketing of a given commodity before permitting the introduction into interstate commerce of a new supply thereof, or at least authorizes it to withhold a certificate of public convenience and necessity under paragraph 18 if it concludes that the immediate effect thereof, and of the consequent establishment on a new line of a carrier of new producers of a given commodity, would be to decrease the car supply and production of producers of the same commodity already established upon existing lines."

This construction, the petition declares, is "impossible" and it is submitted that a case of public convenience and necessity for the construction of an extension is made by proof that the extension will be open to public use and will develop sufficient business to justify its construction, maintenance and operation. "That the new business so developed may be a commodity the market for which is over-supplied, that the new production of such commodity may displace in the market the product of existing shippers on the line of the same carrier or elsewhere, or lower market prices, has no bearing on this case. The business of the commission is the regulation of transportation, not trade or markets."

The Development of the Continuous Turntable

Description of American Bridge Company's Newest Design with Comparison with Earlier Types

By Otis E. Hovey

Assistant Chief Engineer, American Bridge Company, New York City

THE NECESSITY for locomotive turntables developed simultaneously with the construction of the earliest railroads in England, following closely the completion of the first successful locomotive by George Stephenson in 1828. Most of the early English turntables were continuous iron frames supported by both the center pivot and the end

many cast iron center bearing cantilever tables were built with the Sellers type of roller centers. As the weight and length of locomotives increased the use of cast iron in the main girders was gradually superseded by riveted wrought iron and later by steel. Locomotives have continued to increase rapidly in weight and length and turntable design has necessarily been modified to conform to locomotive growth.

Disadvantage of Cantilever Table

The time required to balance modern long and heavy locomotives on cantilever turntables, the excessive length of table to balance them when not fully stocked with fuel and water, and the cost, and often difficult drainage, of the deep pits necessary for long table of this kind, indicated that a new type of turntable was desirable. The choice of type was between discontinuous, or two span, and continuous construction. In either type the end wheels always carry load and an engine can be turned in any position without balancing.

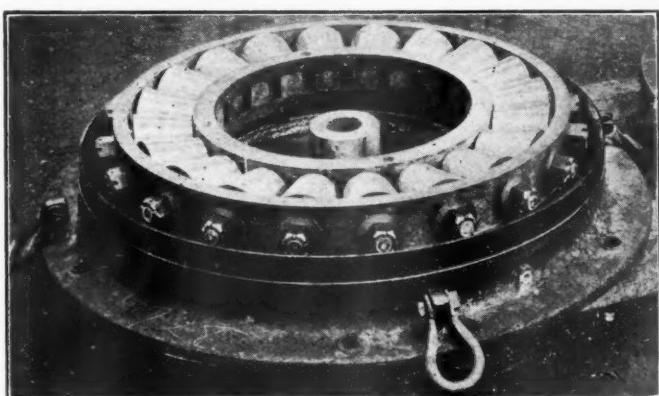


I—The Base of the Turntable Center with Rollers Removed

wheels. The end wheels ran on a circular iron track in the turntable pit. It was quite common to provide two tracks, at right angles to each other, across the table and to floor over the whole pit. The tables were only about 8 ft. to 12 ft. in diameter and of about the same construction that is now used for small, narrow gage shop tables. As the size and weight of engines increased, the design of turntables was



III—The Center with Cover Installed



II—The Rollers in Position in the Turntable Center

modified until at the present time the prevailing European type is either continuous over the center and end trucks or discontinuous at the center.

In America the early tables were of wood, usually with the main girders built in the form of King-post trusses, the upper tension members being wrought iron rods. In most cases these tables were of the center bearing, tilting, or cantilever type. In the period from 1860 to about 1880

Separate tractor units are not needed, for a wheel at each end can be driven by gearing and the power supplied by an electric, or other type of motor mounted directly upon the end truck.

In order to prevent large horizontal forces upon the center, motors should be placed at two diagonally opposite end corners of the table. It is hardly possible to make a machine as large as a turntable, supported by eight end wheels and a center, so accurately, that no horizontal forces will be developed transversely across the center during rotation of the structure. In case of careless installation these forces may become large. When one motor is out of service and the table must be turned from one end, the horizontal shear at the center due to dragging the undriven end, when loaded, is large, and acts during the entire time the table is moving. It is evident that great horizontal strength and stiffness are required at the center of the table. Continuous girders designed for engine loads, have their maximum section and strength at their centers and when adequate laterals are used

amply provide the required horizontal strength for tractive forces.

American Bridge Company's New Design

The drawings show the continuous turntable as built by the American Bridge Company. The first of this type table was purchased by the Wheeling & Lake Erie, the order consisting of two electric drive, 100-ft. tables designed for 350-ton Mallet locomotives. The next installation was a 90-ft. table for the Boston & Maine at Concord, N. H., which was equipped with both an electric and an auxiliary air drive. It was designed for 325-ton Mallet engines. A fourth table, 100-ft. long, electric drive and designed for 320-ton Mallet locomotives, was installed by the New York Central at Suspension Bridge, N. Y., while numerous others are now in the process of fabrication, shipment and installation on additional roads.

The main girders of this type table are continuous from end to end. In ordinary cases a single center cross girder is used, which rests upon a rocking saddle at the top of the center. Top and bottom laterals are provided, and the points of attachment of the end trucks are held by a special panel of bottom laterals in the plane of the truck connection. At the center the laterals are attached to both the main and center cross girders at the top and to the main girders, at the cross girder connection, at the bottom. The table is thus continuous in the horizontal as well as in the vertical planes. The main girders are made shallow so that irregularity in the upper surface of the circle-rail shall not cause material increase in the girder stresses. It should be noted that vertical inequalities in the surface of the circle-rail, when less than the dead load deflections of the main girders, only affect the dead load stresses; for when the table rests upon the trucks and the center, it acts as a true continuous girder for all live loads.

The end trucks are attached to the main girders by a spe-

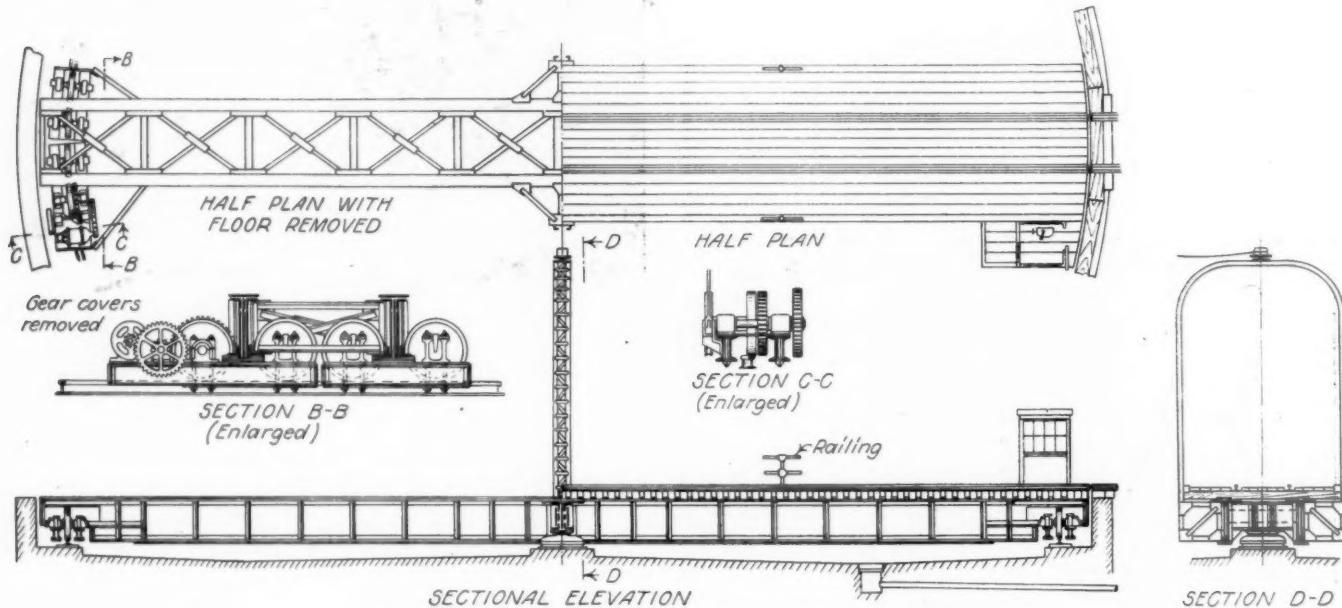
The end wheels are of rolled steel, 36 in. in diameter. The large wheels reduce the rolling friction and also afford a large radius to overcome axle friction. The axles are forced into the wheels and the driven axles keyed. Standard M.C.B. axle bearings are used except for the driven axles where a special bearing provides support for the bottom of the axle, when the motor is running backwards. Whenever



IV—The Rocking Saddle Installed on the Center

it is desired to provide for turning the table by hand, when electric current fails, roller bearings are substituted for the M.C.B. type.

At diagonally opposite corners a motor is mounted on the extended end of the truck and a train of gears connects it with one of the end wheels. A band brake is placed on the extended end of the counter shaft and the brake control is



Plan, Elevation and Section of the Continuous Turntable

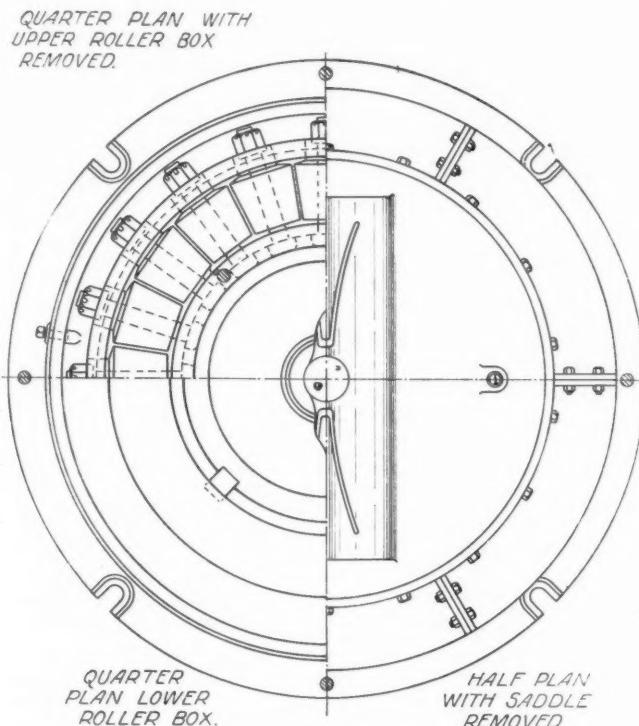
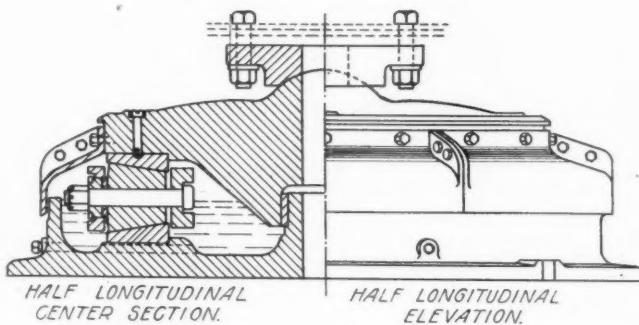
cial detail arranged so that the reinforced end webs of the main girders rest upon heavy bearing plates on the trucks. The attachment bolts are body-bound but the nuts are locked in positions that allow the truck to rock with respect to the girders and thus permit the wheels to take equal loads from the girders. At the same time they are free to follow any irregularities in the surface of the circle-rail. The ends of the trucks are permanently held, with axles radial, by flexible braces attached to the main girders.

carried across the table to a hand lever in the operator's cabin by a series of levers and links. (To avoid confusion in the plan drawing, the operator's cabin is drawn at the end away from the hand brake, but it is always placed at the brake end of the table.)

It should be noted that the operator's house is placed at the left, as one approaches the table. This is the reverse of former practice. A study of several terminals proved that in much more than half of the engine movements, the

engine either backed upon the table from the roundhouse, or left it headed forward, and at the operator's end of the table. This location of the house enables the table operator to signal the engine driver direct without the necessity for another man.

The entire train of driving mechanism and the brake are mounted on the truck frame. They may thus be aligned permanently at the shop. If the truck passes over rough circle-rails, or obstacles upon them, the entire truck and the driving mechanism rock together and no stresses are set up in the machinery. The weight of the motor and mechanism increases the dead load upon the driven wheels by



Plan, Elevation and Section of the Turntable Center

cantilever action. This is especially desirable when the empty table is being accelerated. No sand is needed on the rail.

Adjustment in height is afforded by shims between the bearing plates and the truck frames, and between the center girder and the rocking saddle, on the center. By the use of these shims the effect of any accidental wind in the table is eliminated, and the amount of dead load reactions upon the center and end wheels may be readily adjusted.

In locations where the turntable pit is subject to occasional floods the motors are mounted on an upward extension of the truck frames in which case the only change in the mechanism is the addition of a countershaft and idler gear to the train.

Experience indicates that electric conductors are more easily maintained when brought to a central overhead wire-tower than when they pass downward through the center to conduits under the pit pavement. The drawings show a convenient form of wire-tower in which the lattice bars are arranged to form a ladder, and as the posts extend to the bottom of the main girders access to the pit is easy. When the electric wires must be brought in through the center, two center cross girders are used.

A Roller Center is Advocated

One of the drawings shows the type of center recommended for use under continuous tables. While it is more expensive than centers of the disc type, the experience of many years proves that well designed roller centers outlast those of the disc type, when used under turntables. Discs are very satisfactory under center bearing swing spans, but the loads are applied more gradually and the shocks due to passing loads are much less than in turntable practice. It also seems to be a fact that much better care is given to swing bridge centers than to turntable centers.

One of the most important conditions is that the loads be transmitted centrally to the rollers within the center. This is accomplished by a rocking saddle with a cylindrical bearing on the top of the center. The contact radius is made small to offer little resistance to motion from friction. Another vital detail is the use of some effective device that permits exact adjustment of the rollers, endwise, so that they may all take load. This is accomplished by inserting hard bronze washers, backed by fillers, between the outer ends of the rollers and castle nuts on the roller pins. The rollers are adjusted to bear when the center is assembled, and the castle nuts are locked. The circumference of the upper roller box is closed by covers that can be readily removed for inspection, cleaning or adjusting the center. Removable plugs allow the oil within the center to be drained out and renewed, without removing the covers. Horizontal thrust is taken by a bronze bushed center post in the lower roller box. A central hole permits electric wires or air pipes to be carried up from the foundations, when desired.

It should be noted that the live ring is not connected to a center post by radials. It assumes a position of equilibrium between the coned tread plates when the table is turned. Experience shows that this method of construction is more durable and causes less friction than in designs where a spider enclosing the rollers anchors to, and turns around, a center post.

The main castings are steel, the hard steel rollers are tempered and ground to gage and the coned tread plates are heat-treated cast steel, accurately finished. The center should be filled with suitable oil up to the top of the oil-retaining flange.

Some have objected to continuous turntables because the circle-rail must be heavy, accurately placed and well maintained. This is almost equally important in cantilever tables, but has been much neglected. Inadequate foundations, light ties and circle-rails, wide spaces between the ends of the table and approach rails, and poor maintenance, have in most cases been responsible for the hammering of engine wheels which are so destructive when passing on or off the tables. There should be no more hammering at the ends of tilting than continuous tables, provided that the design and construction are what they should be, and that the engines approach the table at the tractor end, which should be counterbalanced just enough to cause the end wheels of the empty table to bear lightly on the circle-rail.

Statistical Comparisons of Types

It is interesting to compare the maximum live load truck reactions of a 100 ft. turntable of each of the three types

of construction, for a 375-ton Mallet or an E60 locomotive.

Cantilever (tilting)	141,000 lb.
Continuous	150,000 lb.
Discontinuous (two spans)	165,000 lb.

The depths of pits required for a few lengths of turntables are given. At the ends the depth given in the table is from base of the approach rail to the masonry, allowing for a 6-in. circle-rail on 8-in. ties for a cantilever table and from base of the approach rail to masonry under circle-rail bearing plates for the continuous type. At the center the distance given is from the base of the table rail to the top of the center pier.

Length Ft.	Deck cantilever			Through cantilever			Deck continuous		
	End Ft. In.	Center Ft. In.	End Ft. In.	Center Ft. In.	End Ft. In.	Center Ft. In.	End Ft. In.	Center Ft. In.	
80	5	2 3/4	7	4	4	10 3/4	4	8	5
90	6	3	8	4	4	11	5	6	5
100	6	5	8	10	5	4	5	9	5
110	6	7	9	6 1/2	5	4	5	9	5
120	6	7	10	1 1/2	5	6	5	11	6

The saving in depth of pit of the continuous with respect to the deck cantilever type is considerable and results in a material saving in cost and easier drainage of the pit.

The power required to turn a continuous table is not excessive as may be seen from the following tests made on a 100-ft. table on the New York Central, at Suspension Bridge, N. Y. The tests were made two days after the table was erected and before the bearings were polished by use.

No. of tests averaged	Load conditions	Motors used	Max. H. P. accelerating	Time of acceleration	Max. H. P. running	Total time from test until stopped	360° turn	Weather condition
1	Empty	Both	45.5	3.5 sec	8.6	1 m 39 sec		
2	Empty	Cab end	20.2	8.1 sec	9.4	1 m 45 sec		
2	Empty	Far end	21.0	8.6 sec	10.9	1 m 44 sec		
2	Engine 3776 balanced both	Both	57.5	6.0 sec	16.7	1 m 42 sec		
2	Engine 3776 balanced cab end	Cab end	27.9	9.2 sec	17.2	1 m 59 sec		
2	Engine 3776 at one end	Both	40.6	12.0 sec	19.0	1 m 49 sec	Raining	
	Empty, full speed	Both				1 m 35 sec		
	Engine 3776, full speed	Both				1 m 37 1/2 sec	Raining	

The type H 5 engine used, No. 3776, weighed 284,000 lb., but was the heaviest available at the time the tests were made. This table has two 35 h.p. motors. The horsepower given for the accelerating period corresponds to the maximum input of current, and occurs for only a very short time.

Advantages of Continuous Type

Some of the advantages gained by the use of the continuous type may be mentioned.

1. A continuous turntable, with its pit, costs less than a table and pit of the balanced cantilever type with pit and tractor when each is designed to turn the same type of locomotive and tender.

2. About three-eighths of the dead load and 34 per cent of the live load is carried by the end trucks, giving better distribution of the load upon the center and pit-wall foundations.

3. The continuous may be shorter than the cantilever type, for it is unnecessary to balance engines. This is particularly desirable when turning engines with empty tenders, or when a small shop engine must be turned when coupled to a dead locomotive.

4. Continuous turntable girders are relatively shallow, which allows the use of shallow pits.

5. Drainage of shallow pits is provided readily.

6. Cost of pits reduced.

7. Separate tractors are not required. The turntable becomes a self-contained machine.

8. End latches are not needed. The inertia of the table and frictional resistances hold the table under passing locomotives. The hand-operated brake at one end of the table may also be applied if found necessary.

9. The approach and table rails may be installed and maintained permanently with their tops flush, in this manner reducing the hammering of passing wheels to the minimum.

10. Engines and long private cars can be taken on the table at either end, for the rails are flush on top at both ends.

11. Engines may be turned much more rapidly as no time is lost in balancing them. When the engine is on the table in any position it can be turned.

12. The replacement of old short turntables by longer new ones is much simplified. The old pits of most deck cantilever tables are deep enough at the center for the longer continuous type. The new pit walls may be built complete outside of the old wall, without interference with the old table. The old table can then be lifted out of the pit and the new one installed with a minimum interruption of service.

President Coolidge Sees No Need for Special Session of Congress

WASHINGTON, D. C.

PRESIDENT COOLIDGE is planning to spend the remainder of the summer in Washington, it was stated officially at the White House on Tuesday, in order that he may be able to familiarize himself with the details of the various problems before him, but he sees no necessity at this time for calling an extra session of Congress. One of the first problems to which he has devoted his attention was the threat of a suspension of work on September 1 in the anthracite coal mines and he is relying for the present on the mediating abilities of the United States Coal Commission, which invited the representatives of the miners and of the operators to a conference in New York on Wednesday. It was regarded as somewhat significant in some quarters that the President did not himself call the parties to Washington for a conference at the White House.

The new President has continued the practice of seeing the newspaper correspondents on Tuesdays and Fridays following the Cabinet meetings for the purpose of discussing developments at those meetings and answering questions put to him on other matters. Thus far he has not given any indication as to views he may entertain at present on questions relating to transportation and it is not considered likely that he will have occasion to make any definite announcement on the subject in the near future. He would be expected to include matters pertaining to transportation in his address at the opening of Congress in December but in view of the character of the new Congress it is not believed that the administration is likely to make any very strong attempt toward affirmative legislation affecting railroads, but that its attitude will be shown more specifically with reference to the proposals which will be made by the radicals. Mr. Coolidge has not given public expression recently of his views on the transportation act and the various controversies that have arisen regarding its various provisions but shortly after the act was passed and while he was still governor of Massachusetts he expressed his approval of the act in general in the strongest terms.

"Undoubtedly it is not perfect," he said in a speech at Manchester, N. H., on September 11, 1920, "and experience will show it can be improved, but as a great piece of constructive legislation, intended and suited to provide needed facilities of transportation on a sound basis, it cannot be too highly commended. It strives to be fair alike to the stockholder, to shipper and to employee. To appreciate the magnitude of the problem it is only necessary to remember that the value of the property dealt with was \$20,000,000,000 and

that directly and indirectly the result affects every inhabitant of the Nation."

At the same time he also said: "In modern business a fundamental requirement is transportation. It is of little use to produce materials whether from agriculture, from the forest or the earth, or the manufacturing plant, unless they can be transported to the market and distributed to the consumer.—If the great business of transportation is prosperous it will bring of necessity prosperity to so many enterprises that a general prosperity will abound. This has always been a Republican policy."

While this does not reveal whether Mr. Coolidge thinks the time has now come to amend the transportation act, it rather indicates that he would not be in favor of the kind of amendments which would be proposed by La Follette, Brookhart, et al., and while the radicals hold a balance of power in the next Congress there is no likelihood of their being able to muster a two-thirds majority to pass anything over a presidential veto.

Government Drops S. P.-C. P. Litigation

WASHINGTON, D. C.

ONE OF THE FIRST ACTS of the new President, Calvin Coolidge, was to approve a decision reached by Attorney General Daugherty to carry no further litigation instituted by the government in 1914 to break up the combination of the Southern Pacific and the Central Pacific. The attorney general announced on August 13 that it had been decided not to take an appeal to the Supreme Court, as had been expected, from the recent decision of the United States court at St. Paul which sustained the Interstate Commerce Commission's order permitting the Southern Pacific to retain its control of the Central Pacific by stock ownership and a new lease.

In the proceeding last June in the court to enforce the mandate of the Supreme Court that the Southern Pacific be required to surrender its lease and ownership of stock of the Central Pacific, Judges Sanborn, Lewis and Kenyon held that the commission had authority to consent to a new control by the Southern Pacific which it had applied for under the provisions of the transportation act, passed subsequent to the bringing of the original suit by the government under the Sherman anti-trust law. At that time the solicitor general took the position that the case ought to go to the Supreme Court for final decision.

The President and the attorney general, however, have given considerable study to the various phases of the litigation, the broad policies involved and the necessity for definite action. Mr. Daugherty was of the opinion, he explained, that the contentions of the Southern Pacific, the ruling of the Interstate Commerce Commission and the decision of the three judges at St. Paul, were well founded, and that the transportation act authorizes a transaction of this character between railroads when approved by the commission, after exhaustive hearings at which all interests are heard. The decision to carry the litigation no further and to refrain from making a test case as to whether the transportation act has superseded the policy of the anti-trust law is in accordance with the position announced by the late President Harding in favor of stimulating consolidations.

The petition in this case was filed in the district court on February 11, 1914. It charged that the then existing control of the Central Pacific Railway Company by the Southern Pacific Company, under a lease and through stock ownership, was in violation of the Sherman law, and also in violation of the provisions of the act of Congress of July 1,

1862, and the amendments or supplements thereto, known as the Pacific railroad acts. On March 9, 1917, a final decree dismissing the petition of the United States, for want of equity, was entered by the court in favor of the defendants. The opinion held that the control alleged in the petition violated neither the Sherman law nor the Pacific railroad acts. From that decree the United States appealed, April 23, 1917. The case on appeal was argued and submitted in the Supreme Court in April, 1921, and was re-argued and resubmitted in April, 1922. The decision of the Supreme Court was rendered on May 29, 1922.

The decision of the Supreme Court reversed the decision of the lower court, and held that the stock ownership of the Central Pacific by the Southern Pacific, and the lease entered into by and between said companies, did violate the provisions of the Sherman law.

On July 31, 1922, an application was made to the Supreme Court for a re-hearing, and a brief in support thereof was filed by the defendants. The application for a re-hearing was denied by the Supreme Court, October 9, 1922.

The Southern Pacific Company thereupon made an application to the Interstate Commerce Commission for its authority and consent, under the provisions of the transportation act of 1920, and particularly under paragraph 2, section 5, of the interstate commerce act, as amended by the transportation act, to acquire control of the Central Pacific under the terms and provisions of a new lease, which new lease was submitted with said application.

The application set forth that the control applied for would be in the public interest, and stated the facts and conditions supporting this claim, and invoked a finding and order from the commission approving and authorizing the proposed lease and stock ownership as in the public interest.

On this application a full and exhaustive hearing was given by the Interstate Commerce Commission, at which hearing, after due notice to the government and the public service commissions of the states in which the lines of the Central Pacific are located, these states, through their authorized representatives, appeared and intervened, and participated in the proceedings under the application. The states of Colorado, Oregon, Idaho, Wyoming and Nebraska intervened, and, through their authorized representatives, took part in the further proceedings under the application. The shipping public in the above-named states, as well as other states, was represented by numerous civic and commercial bodies and individuals, who intervened and took part in the hearing upon the application. The Union Pacific on October 25, 1922, also intervened and filed a motion to dismiss the application for want of jurisdiction on the part of the Interstate Commerce Commission. This motion was extensively heard and fully argued by counsel. The Interstate Commerce Commission overruled the motion, after a full consideration of the question raised by the Union Pacific, to dismiss the application for want of jurisdiction, leaving the questions raised to be disposed of in connection with the disposition of the case upon its merits.

After an extended hearing at which testimony was taken and other evidence offered and filed by the Central Pacific to prove the allegations of its application, and by the states and other intervenors and interested communities, civic and shipping organizations throughout the territory served by the railroads involved in the litigation, and after exhaustive and able arguments on the part of counsel, the Interstate Commerce Commission took the entire matter under advisement, and on February 6, 1923, rendered a report and decision, finding and declaring the proposed lease to be in the public interest, and the aforesaid stock ownership to be also in the public interest, and finding and declaring the terms and conditions of such acquisition to be reasonable and just, and approved and authorized the lease and the stock ownership.

However, in thus giving its approval, the Interstate Com-

merce Commission attached certain important conditions not contemplated when the application was filed. By these conditions the lease and stock ownership thus authorized was subject to termination by order of the Interstate Commerce Commission if and when found by the commission to interfere with the consummation of its final plan of consolidation of railroads when promulgated under Section 5 of the interstate commerce act.

The order of the commission found that to separate the Central Pacific from the Southern Pacific would:

- (a) Disturb traffic conditions on the whole Pacific coast and among the inter-mountain states;
- (b) Increase traffic rates by causing two line hauls instead of one line haul in practically the same territory;
- (c) Leave the Central Pacific without sufficient equipment and without sufficient credit to obtain such equipment (thus creating a car shortage throughout the territory served by the Central Pacific);
- (d) Disturb some \$240,000,000 of bonds and securities issued or guaranteed by the Southern Pacific and pledged as collateral security.

In the proceedings last June in the district court to enforce the mandate of the Supreme Court, the Southern Pacific contended that the transportation act and the action of the Interstate Commerce Commission as authorized thereby, made inoperative the Sherman law in that regard.

"It must be remembered," said Mr. Daugherty, in a statement, "that the Interstate Commerce Commission, one of the most important and powerful administrative agencies of the government, attached conditions to its approval and consent, which conditions, in my judgment, safeguard the public interest, and, if not complied with, subject the lease and stock ownership to termination.

"If the question as to whether the transportation act made inoperative the Sherman law, as applicable in this case, under the conditions set forth in the transportation act, were originally submitted to me, as attorney general, without having had the benefit, as I now have, of the opinion of the Interstate Commerce Commission and the opinion of such eminent jurists as Judges Sanborn, Lewis and Kenyon, all of whom, both judges and members of the Interstate Commerce Commission, have given the fullest and most intelligent consideration to the testimony, where applicable, and to the law governing this case, I should probably have adopted the course of an appeal to the Supreme Court, so that the Supreme Court might take into consideration the

particular question which it did not take into consideration in the rendition of its opinion, viz., whether the transportation act, as applicable to railroads, authorizes the Interstate Commerce Commission to give its approval and consent in cases which, but for the provisions of the transportation act, might be held to be in violation of the Sherman law.

"But, with the opinion of the three distinguished circuit judges, and with the opinion of the Interstate Commerce Commission, I have reached the conclusion that it is my duty to end this litigation and not pray for an appeal to the Supreme Court. It was a beneficial victory when the government won the case in the Supreme Court, for had the government not been successful, an acquirement of the character then being urged by the Southern Pacific, without any conditions, probably would have worked a hardship to the community served by these facilities. . . ."

Freight Car Loading

WASHINGTON, D. C.

FREIGHT CAR LOADING during the week ended August 4, showed a decrease of nearly 8,000 cars as compared with the previous week but the total, 1,033,130, was above that for any other week. This represents an increase of 190,467 cars as compared with the corresponding week of last year and 246,952 cars as compared with 1921. For the country as a whole the increase as compared with last year was 22.6 per cent, but it was unevenly distributed, the increase for the four eastern and southern districts being 27.4 per cent while that for the three western districts was only 15.3 per cent. As compared with the week before decreases were shown in all classes of commodities except l.c.l., merchandise.

The freight car surplus, which had been increasing for several weeks, showed a reduction during the last two weeks of July and during the week ended July 31 averaged 76,453 cars. This was 3,257 less than the average for the preceding week. Of the total 57,831 were box cars, many of which were stored in the western districts awaiting the grain movement.

There were also 6,546 surplus coal cars, an increase of 1,379 as compared with the previous period. At the same time there were reported shortages amounting to 9,570 cars, including 2,749 box cars and 4,774 coal cars.

REVENUE FREIGHT LOADED

SUMMARY—ALL DISTRICTS, COMPARISON OF TOTALS THIS YEAR, LAST YEAR, TWO YEARS AGO, WEEK ENDED SATURDAY, AUG. 4, 1923

Districts	Year	Total revenue freight loaded										Corresponding period	
		Grain and grain products	Live stock	Coal	Coke	Forest products	Ore	Mdse.	L. C. L.	Miscellaneous	1923	1922	1921
Eastern	1923	9,824	3,063	54,009	3,644	6,149	8,854	65,992	97,973	249,508	.....	194,682	188,302
	1922	11,507	2,653	8,755	1,457	5,228	5,834	65,287	93,961	.....	.....	.....	.....
Allegheny	1923	3,844	2,603	58,223	6,619	3,428	16,016	49,289	82,346	222,368	.....	172,714	153,282
	1922	3,900	2,536	18,462	4,063	3,010	12,772	49,704	78,267	.....	.....	.....	.....
Pocahontas	1923	362	188	28,984	566	1,811	234	6,188	4,820	43,153	.....	.....	.....
	1922	211	141	19,555	243	792	33	3,879	2,944	.....	27,798	26,515	.....
Southern	1923	4,914	2,325	22,187	1,189	23,302	2,176	37,654	37,199	130,946	.....	111,819	108,547
	1922	4,282	2,338	16,777	809	17,407	1,468	34,014	34,724	.....	.....	.....	.....
Northwestern	1923	10,769	8,214	10,245	974	20,181	52,969	31,162	38,408	172,922	.....	151,371	120,491
	1922	12,312	6,614	6,546	1,278	14,739	44,164	28,431	37,287	.....	.....	.....	.....
Central Western	1923	17,195	11,714	12,780	312	12,407	2,827	35,396	57,516	150,147	.....	.....	.....
	1922	19,518	9,721	5,745	448	8,272	2,153	34,403	50,686	.....	130,946	125,406	.....
Southwestern	1923	5,963	3,373	4,103	154	8,817	431	14,784	26,461	64,086	.....	53,333	63,635
	1922	6,530	2,490	3,125	160	5,862	385	12,635	22,146	.....	.....	.....	.....
Total, West. dists.	1923	33,927	23,301	27,128	1,440	41,405	56,227	81,342	122,335	387,155	.....	335,650	309,532
	1922	38,360	18,825	15,416	1,886	28,873	46,702	75,469	110,119	.....	.....	.....	.....
	1923	52,871	31,480	190,531	13,458	76,095	83,507	240,465	344,723	1,033,130	.....	842,663	.....
	1922	58,260	26,493	78,965	8,458	55,310	66,809	228,353	320,015	.....	.....	.....	.....
Total all roads	1923	59,442	25,912	146,095	4,348	43,435	32,284	213,464	261,198	.....	.....	786,178	.....
	1922	4,987	111,566	5,000	20,785	16,698	12,112	24,708	190,467	.....	.....	.....	.....
Increase compared	1922	5,389	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Decrease compared	1921	5,568	44,436	9,110	32,660	51,223	27,001	83,525	246,952	.....	.....	.....	.....
Decrease compared	1921	6,571	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Aug. 4	1923	52,871	31,480	190,531	13,458	76,095	83,507	240,465	344,723	1,033,130	842,663	786,178	.....
July 28	1923	53,160	31,849	194,546	14,274	77,799	83,633	240,046	345,737	1,041,044	848,858	795,432	.....
July 21	1923	46,275	32,454	190,788	14,888	75,808	84,307	240,182	344,225	1,028,927	845,548	788,034	.....
July 14	1923	40,415	32,726	193,831	14,515	71,768	89,298	240,707	336,407	1,019,667	850,676	774,884	.....
July 7	1923	31,069	25,122	160,218	13,770	54,176	75,596	209,480	287,317	854,748	707,025	640,535	.....

Compiled by the Car Service Division, American Railway Association.

Do Record Car Loadings Mean Record Tonnage?

July and August Net Ton-Miles Figures Awaited with Interest—Will They Exceed August, 1920, Peak?

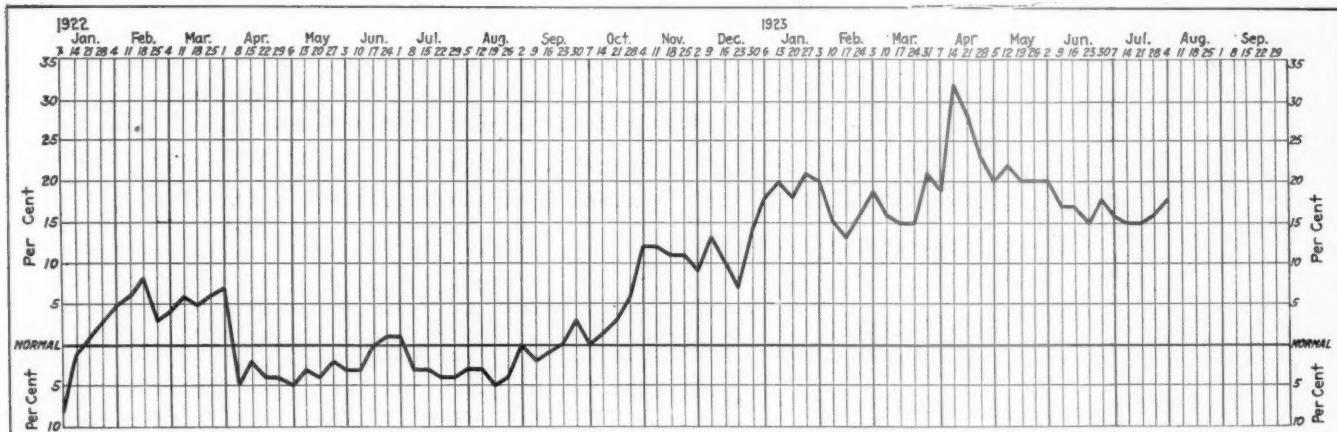
NET RAILWAY OPERATING INCOME of the Class I railroads in June amounted to \$87,741,876. This was equivalent on an annual basis to 5.47 per cent on the tentative valuation. As compared with June a year ago, the June, 1923, net showed an increase of 15 per cent. It was, however, not as good as in May of this year, the net operating income for which month was \$89,999,640, equivalent on an annual basis to 6.33 per cent. As compared with May, the June total operating revenues were roughly \$6,000,000 less. Operating expenses were not quite \$4,000,000 less and net operating income slightly over \$2,000,000 less. Maintenance expenses—way and equipment combined—in June were greater than in May. The decrease in operating expenses for June as compared with May was in the transportation accounts, which facts gives further evidence of the increasing efficiency which the railroads are showing in handling their present heavy business.

The Rate of Return

The June net operating income of \$87,741,876 was equivalent on an annual basis to 5.47 per cent on the tentative val-

return on the tentative valuation or on the carriers' own figure of property investment. This is, of course, axiomatic, but, nevertheless, it is sometimes forgotten, in which case there is likelihood of confusion. In the following the figures will relate to the return on the tentative valuation with the estimated subsequent additions since December 31, 1919, which was the date of the figure used in ex parte 74.

Seasonal variation of railroad gross and net is such that the railroads are not expected to earn an equal amount of net operating income in each month. The Bureau of Railway Economics has made a careful analysis of the seasonal variation of railway net. It has estimated that of the \$1,102,571,932 which the carriers should earn this year to make up the desired 5 3/4 per cent on the tentative valuation, the month of October should supply not 1/12, but 11.2 per cent, whereas January, for instance, should be expected to supply but 5.7 per cent. The proportion for June is 8.4 per cent of the year's total net. That for May, 7.4 per cent. The 8.4 per cent for June would amount to \$92,192,165. In other words, to earn at the annual rate of 5 3/4 per cent on the tentative valuation the June net operating income should total



Freight Car Loadings Per Cent of Normal—Per Cent for Each Week Figured on Basis of Average for Corresponding Weeks, 1918 to 1922, Inclusive.

There has been a decline in the curve since May in spite of record breaking loadings figures. The peak in April represents abnormal conditions because comparison is made with two strike periods (1) the outlaw strike of 1920, and (2) the coal strike of 1922.

ation, as already noted. In ex parte 74, the decision in which were embodied the rate increases which went into effect in August, 1920, the Interstate Commerce Commission determined that a reasonable rate of return would be 5 3/4 per cent, and it established a tentative valuation of \$18,000,000, of which \$17,940,481,000 represented the proportion of the Class I roads and large switching and terminal companies. As of January 1, 1923, subsequent additions and betterments had brought this last figure up to about \$19,175,164,000. To earn 5 3/4 per cent on this tentative valuation the carriers' annual return must be \$1,102,571,932. In 1922, net operating income was much less than that. It was \$776,665,960, equivalent to only 4.14 per cent instead of the desired 5 3/4 per cent.

The carriers protest the tentative valuation figure. Their property investment accounts show a total as of January 1, 1923, of \$21,887,276,444, 5 3/4 per cent of which would be \$1,258,518,395. In discussing the rate of return, it is always necessary to bear in mind whether one's figures relate to the

that figure. As a matter of fact it was less and as a result the per cent earned was less than 5 3/4 per cent.

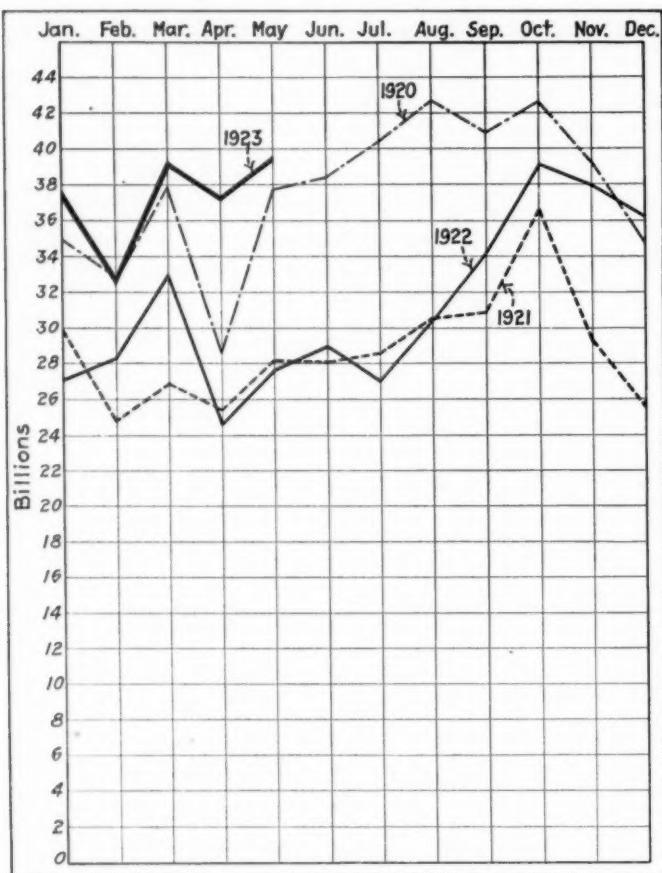
June Gross Less Than in May

Gross revenues in June, 1923, exceeded gross revenues in June, 1922, by 14.6 per cent. Maintenance expenses were 16.9 per cent greater, but total operating expenses were only 11.7 per cent greater, the relatively smaller increase indicating substantial reduction in transportation costs—in other words, increased efficiency. The increase in net operating income June this year over June last year was 15 per cent. These several percentage relationships are about the ones we should expect to find in a comparison between the favorable conditions of June this year with the much less favorable conditions of June a year ago when the coal strike was withholding traffic from the coal carrying roads.

It is, however, in the comparison between June this year and May this year that are presented what are possibly unexpected results. Car loadings were so heavy in June and

so much above those for May as to indicate heavier traffic handled in June than in May and therefore greater gross revenues. The unexpected feature is the fact that June gross, in spite of heavier June car loadings was actually \$6,000,000 less than in May. Emphasis should be placed on the fact that the decrease in June net as compared with May was not due to increased maintenance expenses. Maintenance expenses, it is true, were about \$3,000,000 greater in June than in May, but total expenses were nearly \$4,000,000 less. The decrease in transportation costs was so great as to compensate for the increased charges to the maintenance accounts.

It is, of course, not easy to determine just what may be the meaning of the decreased gross income when conditions otherwise might lead one to expect the opposite. One meaning may be possibly a hint—the trend of earnings in July and August will tell us more about it—that the railroads are certainly not living on the fat of the land. The roads in the western district certainly are not, for in June they earned on an annual basis only 4.2 per cent on their tentative valuation. Those who make it their business to study the trend of individual activity and the business cycle have advised us that there has been a slowing down of business. To be more exact, they have pointed out that the sharp rise which oc-



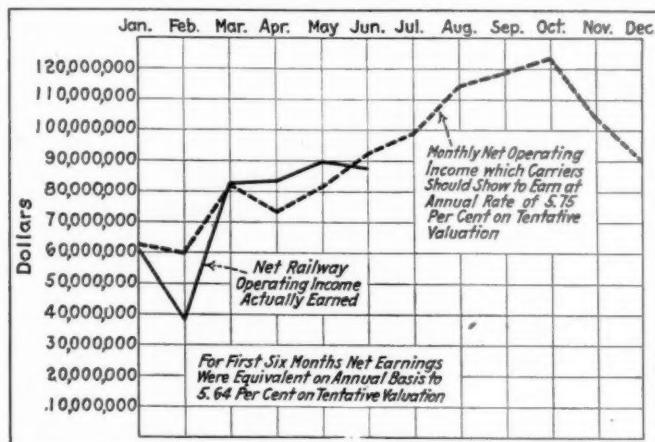
Railway Traffic Shown in Net Ton Miles

curred in business earlier in the year has been retarded. Optimistically, they point out that business will unquestionably continue good for the remainder of the year, the effect of such retardation in the expansion of business activity as has occurred notwithstanding. There is no industry which is affected more by the expansion or decline of general business than transportation. Presumably, therefore, the slight decrease in gross and net in June as compared with May represents the effect on the railroads of that retardation of business activity which the experts admit to have taken place in the past two or three months.

Other Indices of Railroad

Activity Besides Car Loading

Much has been said in these columns about the use of the figures of railroad car loadings as a business index. Those who study business conditions in a large way have given the car loadings' figures considerable importance in their analyses, but, of course, they have realized that car loadings supply but one of several possible indices of business activity. As a matter of fact there are also other indices of railroad activity, such notably as railroad revenue ton-miles, net ton-miles or railroad gross earnings. The last is presumably of less value than the others because of variations due to changes in rates. These are points which railroad men should bear in mind, particularly at this time. The car loadings figures



Net Operating Income as Compared with the Amount Which Should Be Earned Each Month to Show an Annual Rate of 5 3/4 Per Cent

are running at present at record levels. They are so large that they seem to belie any such retardation of business activity as the experts have assured us has taken place. The question that arises is as to whether the same expansion in railroad traffic which has been shown in recent railroad car loadings will also be evidenced in the July or August gross earnings, or in the June, July or August figures of net ton-miles. Until these figures are available the record is incomplete. That it is never advisable to draw final conclusions from incomplete figures, everyone will, of course, agree.

Up to June of this year, the record figure of heavy car loadings was that reported for the second week in October, 1920. The record established that week and which lasted until this June was a figure of 1,018,539. The 1923 loadings have now succeeded in rivaling the heavy loadings for 1920. In 1920 there were five weeks in which loadings exceeded one million cars. In 1923, however, loadings have (up to and including the week ended August 4) exceeded the million mark in nine of the last eleven weeks. In six of the last seven weeks the loadings have further exceeded the previous record for the second week of October, 1920. In June and July, 1923, there were three successive new records for heavy loadings established. The first of these three was the week ended June 30, 1923, with loadings of 1,021,770. This record lasted until the week ended July 21, with its figure of 1,028,927, which was again exceeded in the week ended July 28, which gave us our latest record of 1,041,044 cars.

Latest Net Ton-Miles Figures

Available Are Those for May

The peak of railway traffic volume as expressed in revenue car loadings and the peak of business as expressed in net ton-miles, it happens, do not always agree or synchronize. Thus,

the heaviest freight car loadings in 1920 were in October. The heaviest month from the standpoint of net ton-miles was, however, August, and the loadings for the weeks in that month were considerably less than those for the weeks of October. The August net ton-miles totaled 42.71 billion, whereas those in October, in spite of its heavier loadings, totaled 42.65 billion, only slightly less, to be sure, but less notwithstanding. The latest figures of net ton-miles at present available are those of June, 1923, and the figure for that month was 38 billion. The car loadings for the weeks in June averaged higher than those for August, 1920, but the net ton-miles for May were four and a fraction billion less than the net ton-miles for August, 1920. This again presents the question as to whether, in spite of the progressively heavier revenue car loadings in July and August, net ton-miles will exceed the figure reported in June. Or if the July figure does exceed that for June, will it, or will the figure for August, exceed the record-breaking figure which has stood since August, 1920?

It would help a great deal to know why it is that the peaks

miles in August, 1920, the car shortage reached a figure of 151,000—that being the highest figure reached and the date of which was the period August 24 to September 1. The shortage decreased gradually in September and October and finally became a surplus about the end of November. In 1921, there was a small shortage—but still a net surplus—in October, 1921, when net ton-miles reached a total of 36.5 billions.

In 1922, of course, special conditions ruled because of the shopmen's strike. The heaviest month in 1922 was October with 39.3 billion net ton-miles. This volume of traffic and strike conditions combined to establish conditions which resulted in a car shortage which was at its worst in the period October 24 to 30 with a figure of 179,239 cars. This shortage lasted into 1923 until about May when the surplus became larger than the shortage. Since the middle of May there has been a considerably larger surplus than there has been shortage. The shortage declined in March when the railroads handled 39.2 billion net ton-miles. It continued to decrease in April with 38.3 billion net ton-miles and

THE TREND OF RAILROAD ACTIVITY—FIGURES FOR 1923 SO FAR AS AT PRESENT AVAILABLE

Revenue car loadings	Date	Surplus	Short- age	Net ton-miles (for month)	Revenue ton-miles (for month)	Revenue tons (for month)	Total operating revenues	Total operating expenses	Net operating income	*5 3/4 per cent of tentative valuation would be	
January 6... 770,303	January 7...	20,426	73,285	January	37,663,000	23,941,844	120,045	502,160,456	408,814,552	60,874,392	62,962,673
January 13... 873,251	January 14...	28,282	73,342								
January 20... 865,578	January 22...	26,485	72,754								
January 27... 871,164	January 31...	26,588	73,269								
February 3... 865,675	February 7...	28,628	70,522	February	32,616,000	29,433,867	152,798	446,639,391	375,825,236	30,859,373	59,993,545
February 10... 853,289	February 14...	27,172	72,855								
February 17... 817,778	February 22...	20,786	76,900								
February 24... 830,223	February 28...	15,819	80,633								
March 3.... 917,896	March 7....	13,229	79,270	March	39,218,000	35,273,546	188,303	535,541,431	417,913,187	83,568,473	82,317,518
March 10.... 905,219	March 14....	12,461	74,442								
March 17.... 904,286	March 22....	12,741	71,443								
March 24.... 917,036	March 31....	14,196	68,986								
March 31.... 938,725											
April 7.... 895,767	April 7....	15,168	58,237	April	38,298,000	34,797,383	186,480	523,167,177	404,058,117	83,201,312	73,615,928
April 14.... 946,759	April 14....	14,241	48,584								
April 21.... 957,743	April 22....	11,062	44,299								
April 28.... 963,694	April 30....	13,556	35,282								
May 5.... 961,029	May 7....	16,081	28,316	May	39,597,582	35,996,174	206,564	547,282,485	420,636,202	89,999,640	81,773,740
May 12.... 974,531	May 14....	18,419	23,761								
May 19.... 991,797	May 22....	22,700	20,585								
May 26.... 1,014,029	May 31....	32,443	16,277								
June 2.... 932,041	June 7....	41,106	12,978	June	38,000,994						
June 9.... 1,013,249	June 14....	51,988	12,787								
June 16.... 1,007,253	June 22....	58,671	11,896								
June 23.... 1,002,740	June 30....	63,636	11,217								
June 30.... 1,021,770											
July 7.... 854,748	July 7....	64,067	6,888	July							
July 14.... 1,019,667	July 14....	84,210	5,574								
July 21.... 1,028,927	July 22....	79,710	7,891								
July 28.... 1,041,044	July 31....	76,453	9,570								
August 4.... 1,033,130	August 7....			August							

*The carriers should earn this amount to show earnings on annual basis of 5 3/4 per cent on tentative valuation.

in railroad car loadings and those in net ton-miles do not synchronize. Presumably the reason that they do not lies in the varying character of the traffic. Thus, it may develop that at present there is being handled a larger than usual proportion of light loading and shorter haul freight. Ascertainment of the facts will have to wait until more complete figures are available. We do know, at least, that a somewhat larger proportion of the present business is in the east which may indicate shorter average hauls, but it does not seem advisable to depend too much on that single detail.

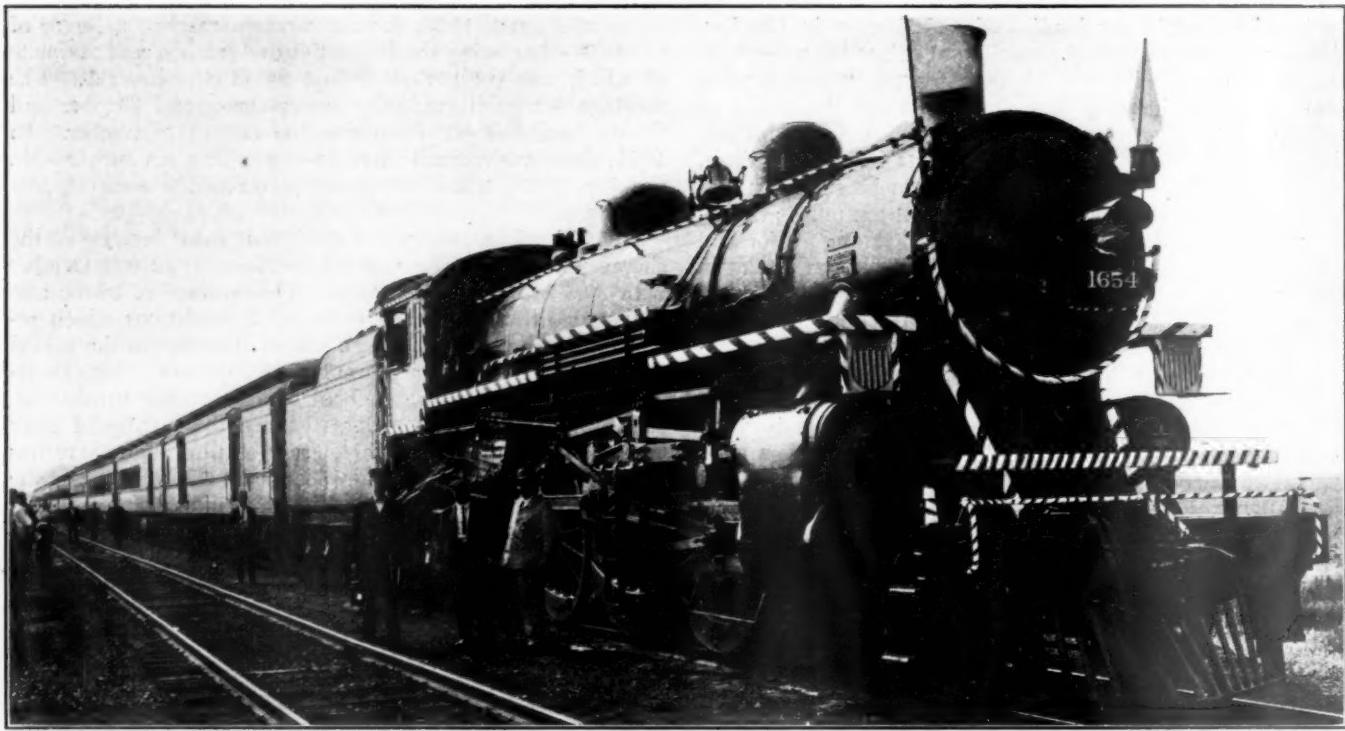
No Car Shortage

For the period July 22 to 28, the railroads reported an average daily surplus of 76,453 cars and an average shortage of 9,750. These figures show a slight reduction in the surplus and a slight increase in the shortage. The figures for the period July 8 to 14, for instance, were surplus 84,210 and shortage 5,574. It has happened in the recent past that a car shortage usually appears when net ton-miles approach or exceed a monthly total of much over 35 billion net ton-miles. When the railroads handled 42.7 billion net ton-

finally turned into a surplus in May with its 39.6 billion net ton-miles. This is evidence enough that the railroads have again restored their old time efficiency. Their task for 1923, of course, still lies before them.

Conclusion

In conclusion, the point might be made that it is not advisable to draw what may prove to be unwarranted conclusions from the present record-breaking car loading figures. There is as yet lacking conclusive evidence that as expressed in net or revenue ton-miles the railroads are at present handling a record-breaking business. The net ton-miles figures for July and August, will be watched with unusual interest to see if they do show new records of railway traffic volume. Record-breaking or not the present railway traffic is sufficiently large so that the feat of the railroads in handling it without congestion and with a car surplus is a real achievement. The job for the year, however, is not yet over. Railway men will lend every effort to continue for the rest of the year the remarkable results which have been thus far achieved.



Decorated Funeral Train Locomotive on the North Western

Harding Funeral Train Given Unprecedented Care

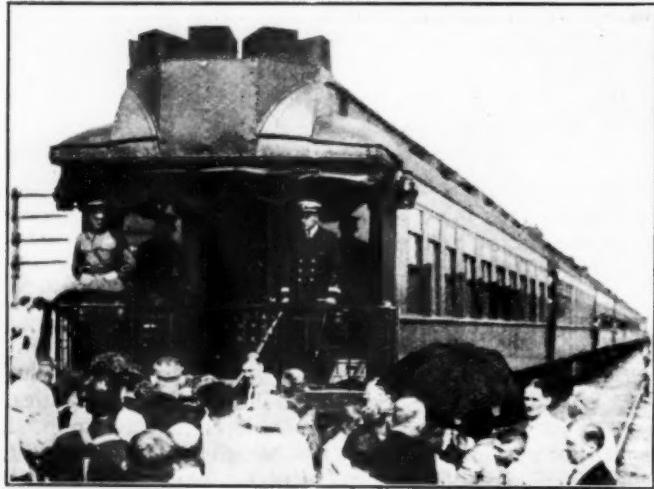
Railroads Took Unusual Precautions to Insure Safe Movement on Memorable Trans-continental Journey

WITHIN TWO HOURS after the death of President Harding was made public in San Francisco, Cal., at 8 o'clock on the evening of August 2, President Sproule and Vice-President Shoup of the Southern Pacific and executive officers of other railroads conferred with members of

the continent from east to west shortly before was to be returned to Washington with its 12 cars intact, except for changes of dining cars. The resources of the American railroads in emergency have rarely been more forcefully brought home than in this instance, when the body of the late president of the United States was transported across the continent, secure in the extreme precautions which operating officers took to insure a speedy and safe journey.

It is doubtful if such measures have ever before been taken to safeguard a train as were taken in the operation of the presidential funeral special. Faced with the necessity for quick action, the officers of the Southern Pacific, the Union Pacific, the Chicago & North Western, and the Baltimore & Ohio, over whose lines the special train was operated, lost no time in arranging the schedule for the transcontinental journey and in throwing all their resources behind their task.

The tentative schedule outlined for the train was for departure from San Francisco at 7 p. m. on August 3, arriving at Ogden, Utah, at 9:05 p. m., August 4; at Omaha, Neb., at 2:15 a. m., August 6; at Chicago at 3:30 p. m., the same day; and at Washington, D. C., at 1:30 p. m., on August 7. This fast schedule was maintained with little deviation while the train was traversing the sparsely settled western states. Departing from the Third Street station of the Southern Pacific in San Francisco 15 minutes late, the train soon made up the lost time and arrived at Ogden six minutes ahead of the schedule. The time elapsed, 25 hr. 44 min., was 21 minutes faster than the schedule of the Overland Limited. The train left Ogden on schedule time at 9:15 p. m., August 4, and maintained its rate of speed consistently to Chappell, Neb., in spite of the crowds which lined the tracks at many points. At Chappell the locomotive on the funeral train slipped a



Flag Draped Casket in Car "Superb." Voice Magnifiers Used in Speaking Tour Shown on Top of Car

the presidential party on plans for the operation of a special train carrying the body of the late president from San Francisco to Washington, D. C. Before midnight these plans had been completed. The presidential special which had crossed

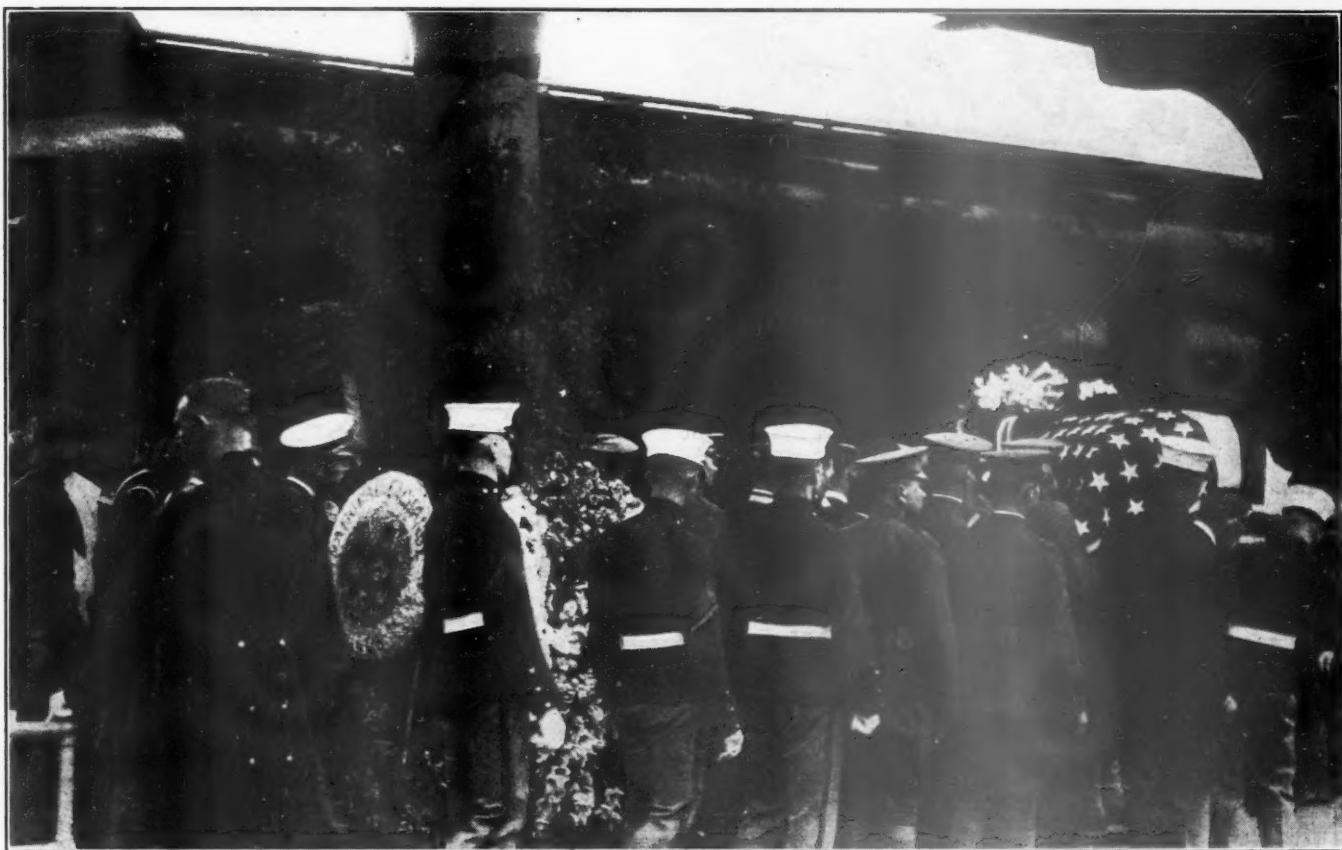
tire, but through the quick work of the engineman, an accident was averted. After a slight delay the locomotive of the Pacific Limited, which was waiting at that station to allow the special train to pass, was drafted into the special service. This mishap consumed an hour and the funeral train was that much behind its schedule when Omaha was reached.

Mrs. Harding Requests Slow Speed

After transferring the train to the North Western, 40 minutes of the lost time had been made up when Cedar Rapids, Ia., was reached. Noting the large crowds at this point, Mrs. Harding requested that the train be run at slow speed through all towns so that the crowds which lined the track might catch a glimpse of the flag-draped casket. This request was thereafter faithfully observed with a resulting loss of time. Skillful handling, however, brought the train into West Chicago only one hour behind its original schedule. At this

tions were issued on the day on which the special left San Francisco to all officers and employees of the road having to do with the handling of the train. Mr. Vilas personally supervised the dispatching of the special from Chicago, while other executive officers rode the train to see that all went well. The schedule of the train from Omaha, Neb., to Chicago was fixed at 13 hours, or 20 minutes less than that of the Overland Limited. At this time, which was previous to Mrs. Harding's request that the train run at greatly reduced speed at all stations, no intermediate stops were contemplated, except those that were necessary from an operating standpoint for coal, water and train orders and change of engines. Stops were planned at Denison, Iowa, and Malta, Ill., for water; at Boone, Iowa, and Clinton for change of locomotives, and at such coaling stations as were found necessary.

A pilot train was operated 15 min. in advance of the funeral train. This pilot train consisted of a locomotive, a steel



Lifting Casket Through Side of Car

point such immense throngs were encountered that the police protection furnished was inadequate and the train was able to proceed only at a very slow speed. All through Chicago this condition existed, so that the transfer to the Baltimore & Ohio was made about three hours late. The train left the outskirts of Chicago at 9:30 p. m. More and more time was lost on account of the crowds and in spite of the efforts of B. & O. officers the special did not reach the Capitol until 10:25 p. m., August 7, over eight hours late.

Maximum Safety Measures Taken

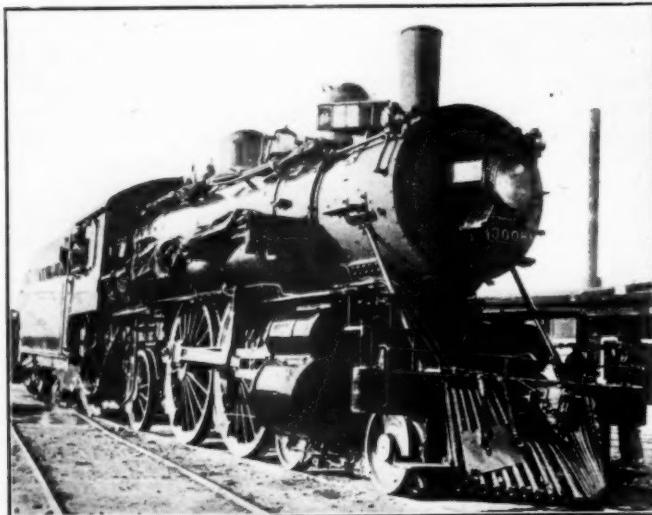
On all four of the roads over whose lines the special ran, nothing was left undone to avert any possibility of accident. The precautionary steps taken by the Chicago & North Western, while possibly a little more complete than those on the other roads, were identical in the main with those taken by them. Under the direction of G. B. Vilas, general superintendent of the North Western at Chicago, detailed instruc-

baggage car and a business car, it being understood that the locomotive hauling the pilot train was available for use as an emergency locomotive in case of an engine failure on the funeral train. In the business car of the pilot train were C. T. Dike, engineer maintenance of way; J. A. Peabody, signal engineer, and the division superintendents, division engineers and master mechanics of the various divisions traversed by the train. In addition to the pilot train locomotive being available as an emergency engine, locomotives headed eastward were fired up and held at Boone and Clinton, prepared to protect the funeral train against engine failure or other emergency.

Aboard the funeral train itself were F. H. Hammill, assistant general manager, who was in charge of the train; J. L. Ferguson, general passenger agent; E. B. Hall, superintendent motive power; T. H. Goodnow, superintendent car department; W. Bennett, superintendent of telegraph; a road foreman of engines riding the engine; a roadmaster; a car

repairer with complete outfit; a lineman with outfit and a signal supervisor with repair outfit. The special agents' department co-operated with the various city and village authorities in the safe handling of the crowds at all points.

The locomotives that pulled the funeral train were decorated by the mechanical department so that the decorations on all three locomotives conformed with one another. Every sta-



Southern Pacific Pilot Train Locomotive Draped Ready for Run

tion along the route was also decorated; station grounds and yards were cleaned and all flags were at half-mast.

Precautions to Avoid Accidents

All eastbound freight trains and all switch engines and transfer trains cleared the main line one hour in advance of the scheduled arrival time of the pilot train and remained clear until the funeral train had passed. The conductors of

these trains advised the train dispatchers as soon as they were in the clear to assist them in keeping track of trains on the main line in advance of the two specials. Local eastbound passenger trains conflicting with the schedule of the special also cleared the main line a considerable time prior to the pilot train's arrival, so that an absolutely clear track was assured at all times. Westbound passenger trains were instructed to slow down to six miles an hour on meeting the pilot train and continue at that speed until the funeral train had been met and passed. These trains were usually halted by the crowds, however. All westbound freight trains came to a complete stop on meeting the pilot train, while the train crews inspected the north side of their trains, which was adjacent to the track occupied by the special, with a view to seeing that there was no danger from swinging doors or other obstructions. Additional precautions were taken to insure that freight trains should not stop within city or village limits, in order to minimize the danger of accident to the crowds which lined the track at all points.

All facing point switches on the eastbound main line outside the limits of interlocking plants were locked and spiked previous to the passage of the pilot train and remained spiked until the funeral train had passed. These switches were inspected by officers on a motor car prior to arrival of the pilot train.

The enginemen and trainmen assigned to the special funeral train were especially picked for their experience and competence in handling fast, heavy passenger trains. Many highway crossings along the line were guarded by special watchmen during the passage of the pilot train and the funeral train, sectionmen being stationed at all crossings between Clinton and West Chicago. These crossings were closed 10 min. after the passage of the pilot train and not opened until the funeral train had passed.

Throughout the movement President Finley of the North Western kept in personal touch with the situation and every executive officer personally supervised the work of his department in the handling of the train. The character of the operation was unprecedented in the history of the road.



Canadian Pacific Motor Car Touring France, One of Several Advertising Canada to French People

New Haven's Views of Joint Committee Report

Agrees to Proposal for New England Consolidation— Objects to Charge of Inefficiency

THE DIRECTORS of the New Haven have this week addressed to the stockholders of that property a statement of the board's views concerning the recently issued report of the Joint New England Railroad Committee. The report, to which the statement replies, was prepared by a committee of thirty, five members being appointed by each of the six New England governors. The purpose of the committee was to study the problems of New England railroad consolidations. This report was presented to the New England governors the first week of July. A summary of it appeared in the *Railway Age* of July 7, page 15, and the *Railway Age* commented on it editorially in its issue of July 21, page 100. The report pleaded in favor of a New England consolidation and contained a strong argument against the idea of trunk line control for New England's railroads. It criticized severely the operating efficiency of New England's two largest carriers, the New Haven and the Boston & Maine. For rehabilitation of these lines it offered a plan containing what have been held to be various radical and far-reaching proposals. The most radical of these were, (1) a suggestion for a scaling down of New Haven's bonded indebtedness by means of an exchange or part of the respective bond issues for preferred stock, (2) a suggestion for the issuance of no par value common stock and (3) a suggestion patterned after the plan adopted some years ago for rehabilitation of the Boston Elevated Railway Company for state assistance and operation by boards of trustees appointed by the governors of the states which the respective roads traverse.

The statement of the New Haven directors seconds heartily the arguments of the committee in favor of New England consolidation and it amplifies its arguments with some comments of its own. It joins issue directly with the committee concerning its statements of New Haven operating inefficiency. The report of the joint committee was largely based on criticisms of the low figures of car miles per day and the higher figures of locomotive costs reported by the New Haven. The statement of the committee questions the propriety of using these figures to the extent that they were used as measures of operating efficiency. It contains statements, however, showing the high record of car miles per day made by the Central New England which has the best car miles per day record in New England but the operations of which, in the joint committee's analyses, were bulked with those of the parent company. Further than that the report shows considerable improvement in recent months, recent operating results having brought the figure, exclusive of bad order cars, up to 19 and 20 miles per day as against a five year average for the period 1915-1919 of but 15.5 per cent. The statement of the directors also draws attention to considerable economies effected in recent years by the present management, a statement being introduced showing savings in payrolls, fuel and per diem in 1922 as compared with 1917 of no less than \$19,500,000.

The directors' statement does not favor the joint committee's suggestion for state control and operation by a board of trustees, the most pertinent argument adduced being the fact that the plan suggested for the New Haven is very different in its essentials from the plan which has been in operation for the past several years for the Boston Elevated Railway Company. The statement does not criticize pointedly the suggestions for a scaling down of New Haven's capitalization. It does, however, draw attention to the fact that the stockholders of the company have made great sacrifices

and that the directors are loath to call upon them to make more. "We have great hope," the statement says, "that the joint committee's appeal for co-operation in all quarters may lead to the development of such a wise financial plan as will benefit the company, the security-holders and the public."

The statement follows:

TO THE STOCKHOLDERS OF THE NEW YORK, NEW HAVEN AND HARTFORD RAILROAD COMPANY:

The report of the Joint New England Railroad Committee submitted to the Governors of the six New England states on the first day of July, 1923, was received by the management during the week beginning July second. As soon as copies could be obtained they were furnished to each member of your board of directors. At a meeting of the board on the tenth day of July a special committee was appointed to make careful study of the report and an analysis of the suggestions and criticisms contained therein, and report as soon as possible to the full board. This committee has been diligent in its work, has carefully examined the report of the joint New England committee, has had the assistance of the operating and accounting departments of the railroad company, and has submitted its report to the full board, and as a result the board desires to submit the following statement to the stockholders:

New England Consolidation

It is the firm conviction of your directors that it is vital to the interests of New England industries as well as to New England railroads that in *due time* a consolidation of the rail lines within New England, including not only the New Haven, Boston & Maine, Maine Central, Rutland and Bangor and Aroostock, but also the Boston & Albany and Central Vermont, should be accomplished, and that a consolidation of either the northern or southern lines with the trunk lines will be in the highest degree detrimental to New England's future prosperity.

There is a strong appeal in the joint committee's report to the pride and enterprise of New England business men to retain the management and ownership of the railroads which have been built by New England men and money, and there is a significant warning to New England business men that if they allow those more interested in other parts of the country than in New England to guide and direct the destiny of their rail lines there may follow a decline of the position and importance of New England and New England industry. Vigorous and prompt words and action are needed to awaken New England to the fact that she cannot permit the industries which have made her rich and influential to slip away from her through inertia. This is not the expression merely of a sentiment; it is a statement of a sound business axiom. These New England railroads should be owned, and managed by the people whom they serve. They are now principally owned and managed by New England people. Of the eighteen directors of your company fourteen are residents of and do business in New England and all are vitally interested in its prosperity.

The joint committee points out with great force the economic reasons why a New England consolidation should take place and why such consolidation should be of the New England roads rather than of the several New England roads with several trunk lines. Their reasons may be briefly summarized as follows: Railroad management in New England

must be sympathetic to the development of New England industries and seaports. Its railroad policy should be to preserve all existing differential routes by rail and water to the west and south. A New England railroad management must constantly be alert to preserve rates on such a parity with rates from other sections of the country into the great central territory between the Hudson and the Mississippi rivers, where New England industries now find their great market; that they may compete on fair terms with industries in other sections of the country. This movement of business must be preserved and increased in order to induce eastbound business to seek New England ports, for without eastbound business through the ports shipping lines will not and cannot adequately serve New England interests. The New England railroads constitute practically a great railroad terminal for the distribution and collection of business moving from and to the west and south, and industries in New England must preserve the advantage of ability to choose among a variety of routes.

In every one of the foregoing particulars which the committee points out as vital to the future of New England the interests of the trunk lines are on the other side. Their financial interests are not in New England; they are west of the Hudson. The volume of business they transact in other parts of the country is larger and more important in many respects than the business of New England. It would be to their business interest to dry up the differential routes both by rail and water and oblige the traffic to move in both directions over the east and west main lines. The views expressed by trunk line presidents that a New England consolidation would operate to place the trunk lines at a disadvantage in dealing with New England business indicates the advantage for New England interests of a New England consolidation.

Efficiency of Operation

The board has given careful consideration to the committee's views on operation. The same management which is praised for efficiency in handling its passenger traffic is criticized for supposed inefficiency in handling its freight traffic. Yet one-half of the operating problem of the New Haven Railroad is comprised in the handling of its passenger traffic. Moreover, the Central New England Railway is under the same management and handled by the same operating heads. The performance of the Central New England in car movement, train loading, and gross ton miles per train hour is higher than any other railroad in New England, not excepting the Boston & Albany, as the following figures show:

	YEAR 1921			
	Average miles per freight car day	Train load G. T. M. per train mile	G. T. M. per train hour	Cost of freight expenses per 1,000 G. T. M.
Boston & Albany.....	31.0	961	13,474	\$2.056
Boston & Maine.....	20.5	1,095	12,311	1.994
Bangor & Aroostook.....	16.1	838	10,191	2.247
Maine Central.....	20.2	869	9,744	2.252
Rutland.....	22.6	945	10,127	1.979
Central Vermont.....	28.2	835	8,173	2.273
New Haven.....	16.1*	1,205	13,354	1.794
Central New England.....	41.3	1,452	18,718	1.752

Figures compiled by the Bureau of Railway Economics.

*Includes N. C. Cn. Ry.

From the above it will be seen that the Central New England operated at the lowest cost per 1,000 gross ton miles of \$1.752.

The New Haven's cost was \$1.794, or lower than any other road except the Central New England.

The deductions of the joint committee are mainly drawn from a single premise, namely, an indicated relatively slow movement of freight cars. Perhaps the most satisfactory answer to the committee's opinion is that recently given by Professor William J. Cunningham, the J. J. Hill Professor

of Transportation of Harvard University, who has been a profound student of New England transportation problems and has been a most important witness for the New England lines in their contest with the trunk lines for larger divisions. In a recent communication to the New York Evening Post, respecting the joint committee's report, Professor Cunningham, among other things, says as follows:

"The New Haven and the B. & M. are criticized because they move their cars a shorter distance per day than does the Boston & Albany. The 1922 figures are: New Haven, 13.6 miles; Boston & Maine, 17.1 miles; Boston & Albany, 27.8 miles. The implication is that the New Haven is less than one-half as efficient and the B. & M. less than two-thirds as efficient as the Albany. The committee asserts that 'the average distance moved per car day constitutes a significant test of the efficiency with which the road is operated.' Any one who knows anything about railroad operation, knows that this is not true. If it were true, the Union Pacific in 1922 was six times as efficient as the Pittsburgh & Lake Erie and the Lehigh & Hudson River several times as efficient as the Lackawanna.

"The miles which a car can make in a day are influenced in part by operating efficiency, but they are influenced very much more by length of haul, diffusion of traffic, and terminal characteristics. It will take much more managerial skill to get nineteen miles per car day on the New Haven than to get thirty-eight miles on the Boston & Albany. The New Haven's network of branch lines, its shorter haul, its diffusion of traffic, and its frequent junction points and terminals are factors which absolutely prohibit a car performance approaching that of the Boston & Albany, with its longer haul and more favorable traffic and operating conditions. Yet the committee practically ignores these traffic and operating differences in comparing the New Haven and the B. & M. with the Albany.

"These two principal roads are pilloried because their cars are not as 'nimble' as on the more favorably situated road, and the committee concludes from the statistics of car miles per car day and by an empirical and unreliable index of cars dispatched to cars on hand that their operating efficiency is low. Every railroad in New England is given a clear bill of health except the New Haven and the Boston & Maine. These two roads are condemned largely because of unintelligent deductions from car service statistics."

The car movement for the year ending June 30, 1922, and for the months of June and July, 1923, shows what the present management has been able to accomplish with a more normal situation in regard to power and weather conditions. The figures are as follows:

NEW HAVEN SYSTEM
(Including C. N. E. and N. Y. Con. Ry.)

	Average Miles per Freight Car Day	Includes customary bad orders (4%).
Year ending June 30, 1922....	18.7	Excludes bad orders set aside for rebuilding. Excludes surplus cars stored in periods of light traffic
Month of June, 1923.....	17.4	all bad orders
Week of July 5th, 1923.....	17.6	15.1 18.7
Week of July 12th, 1923.....	18.2	18.2
Week of July 19th, 1923.....	18.9	18.4
Week of July 26th, 1923.....	19.6	19.1
		19.8
		20.6

When in addition to the tremendous complexities of operating a railroad whose main line comprises but about one-sixth of its entire mileage and whose through car movement rarely rises above 6 per cent to 10 per cent of its total car movement and which has innumerable junctions, branch lines and switching yards and a traffic which is diffused all over southern New England, there is considered the heavy burden of an excessive number of bad order cars following federal control, and deficient motive power, due to the handicap of coal and shop strikes and extraordinary winter conditions, and the necessity of conserving every dollar, the board feels that the management is to be commended rather than condemned.

Economies in Operation Not Referred

to by Joint Committee

In this connection the board calls attention to the very large economies effected by the management in the period between 1917 and 1922. These economies, due in part to improvements and betterments and in part to more effective operation, have resulted in annual savings in payrolls, fuel costs and per diem approximating \$19,500,000, as follows:

Payrolls—if it had been necessary to employ in the year ending June 30, 1922, the same number of employees, per revenue ton mile and per passenger one mile, as during the years 1915, 1916 or 1917, the 1922 payroll would have been about	\$15,000,000
more than it actually was.	

Fuel—If the fuel consumed per revenue ton mile and per passenger one mile in the year ending June 30, 1922, had been the same as during the years 1915, 1916 and 1917, the fuel cost would have been about.....	more than it actually was.	2,000,000
Per Diem—If the miles per freight car per day (excluding bad orders in excess of normal, and stored cars) and the car loading for the year ending June 30, 1922, had been the same as during the years 1915, 1916 and 1917, the per diem would have been.....	more than it actually was.	2,500,000
Total.....		\$19,500,000

This does not include savings in material other than fuel and in other items not included above.

Committee's Criticism of Cost of Locomotive Repairs

The joint committee used as an index for cost of locomotive repairs, locomotive mileage, which is a misleading index, unless other factors are considered. On the basis of the cost of repairs per 1,000 net ton miles, and per 1,000 passengers one mile, a closer index of the service performed by locomotives, the results are quite different.

The cost of locomotive repairs per thousand net ton miles in freight service of the New England roads for the year 1921 is as follows:

	Cost per 1,000 net ton miles—freight
New Haven—C. N. E.....	\$0.8072
Boston & Maine.....	1.1502
Maine Central.....	.9768
Boston & Albany.....	1.0106
Bangor & Aroostook.....	1.2428
Central Vermont.....	1.1522
Rutland .....	.9254

Figures compiled by the Bureau of Railway Economics.

which shows that the New Haven produced net ton miles at a less cost for locomotive repairs than any other road in New England.

The cost of locomotive repairs per 1,000 passengers one mile in passenger service is as follows:

	Cost per 1,000 passengers one mile
New Haven—C. N. E.....	\$2.62
Boston & Maine.....	2.93
Maine Central	3.14
Boston & Albany.....	2.62
Bangor & Aroostook.....	5.69
Central Vermont	7.24
Rutland	4.34

Figures compiled by the Bureau of Railway Economics.

which shows that the New Haven produced passenger miles at a less cost for locomotive repairs than any other road in New England, except the Boston & Albany which is the same.

There are certain other points in the joint committee's report relating to operation which the board defers comment upon for the present and have obtained the assistance of independent experts who will assist the board in making a thorough and detailed examination and further statement.

Committee's Plan for Financial Aid to the New Haven Company

The board feels that the company should welcome and gladly co-operate in any effort satisfactory to its security-holders which will increase its revenues without prejudice to its customers and diminish its fixed charges. A scaling down of the interest rate it pays the United States will be helpful as well as just. A public recognition that the railroads are carrying an undue and unfair burden of taxes, and a public recognition of the inconsistency of subsidizing motor truck competition with the rail lines at the expense of the taxpayer, are suggestions by the joint committee which are heartily endorsed by your board. Further, it certainly is not fair that industries which are paying their full share of rates should bear an undue proportion of the burden because the railroads are now required to carry a certain class of passengers at less than cost, and indeed at a heavy loss.

The principal financing which is facing the company is undoubtedly the renewal of the foreign loan, ten per cent of which was paid and ninety per cent of which was renewed and which is due April, 1925, and when the present finan-

cial condition of the New Haven road is compared with that at the time the foreign loan was renewed, in April, 1922, one would imagine that there would be no serious difficulty in taking care of the foreign loan at its maturity. For instance, when the foreign loan was renewed, the company owed banks for borrowed money \$2,000,000; at the present time it owes them nothing and has not increased its outstanding debt during that period. In addition the company between April 1, 1922, and July 31, 1923, has spent on additions and betterments chargeable to capital account more than \$3,200,000 which was directly financed by the company, and its present cash situation is substantially better.

In respect to valuation, the committee either failed to understand or comprehend the position of the company with respect to the tentative valuation of its property found by the Interstate Commerce Commission.

Every witness who testified on this subject distinctly stated that the New Haven was not asking the traveling and shipping public for any return upon its investments in the trolleys, the Boston & Maine, the Ontario & Western, the Rutland, or any other property outside of its own system. What was proposed was that the amount of the valuation of its own system as finally determined should be entered on its books as the accepted measure of capital assets and its balance sheet be readjusted accordingly. Such a readjustment by the New Haven and by the rail lines which it operates, controls or in which it has substantial interests, will undoubtedly show a corporate surplus instead of the present corporate deficit and so empower the New Haven legally to declare and pay dividends when earnings are available for that purpose.

The stockholders of this company have made great sacrifices and the directors are loath to call upon them to make more unless the joint committee's plan or some modification of it should promise substantial benefit, but we have great hope that the joint committee's appeal for co-operation in all quarters may lead to the development of such wise financial plan as will benefit the company, its security-holders, and the public.

The company is justly entitled to increased revenue from several sources, and a co-operative effort which would result in a scaling down of its fixed charges and permit the issuance of a limited amount of securities upon the proper basis, if such can be worked out by the joint committee, should certainly not be declined.

State Aid and State Control

The board has carefully considered the recommendation of the committee with reference to state guaranties and the surrender of the management of the property to trustees appointed by the governors of the states. While the acceptance of this proposition is, of course, for the stockholders to determine, it is the strong conviction of the board that the plan outlined by the joint committee offers nothing substantial by way of state guaranties in return for the suggested surrender of control. The plan outlined differs essentially from that which is proving so successful with the Boston Elevated Railway. The proposed trustees would have no power to fix rates adequate for a fair return upon the value of the property, nor is any guaranty suggested in the event that revenue is deficient, beyond a remission of taxes sufficient to take care of fixed charges. In this the plan differs widely from the plan under which the Boston Elevated Railway has been rehabilitated, in that it offers nothing to protect present shareholders or attract new capital.

The good physical condition of the property and the unremitting labor and devotion which the executive officers and management have shown in the handling of the company's affairs and the success with which they have met and overcome the successive difficulties which have been presented have been recognized by the joint committee and to this

recognition the board wishes to add its commendation of the loyal and faithful services of the employees.

This railroad has been under the harrow for a long period of years. Any errors of former administrations, should not be visited on the present one. What the road needs is a respite from investigations, an opportunity for its officers to devote all their time to the railroad business, the friendly co-operation of New England business men, and with a strong pull all together the New Haven Road can be put back where it used to be, a capable public servant and a sound financial institution.

Use of Charts in Safety Activities

By William S. Wollner
General Safety Agent, Northwestern Pacific

AMONG THE PRINCIPAL DUTIES of the railroad safety officer is addressing audiences of railroad men and the public. These range in size from a local sub-committee of employees numbering a half dozen men, to public safety meetings of several thousand persons. Ranging between these are division committees, officers' staff meetings, chambers of commerce luncheons, service club meetings, etc.

It is practically impossible to present the need for safety without using a great many figures showing the frequency with which accidents occur, and the benefits that accrue from the observance of safety rules. If the desire is to focus the

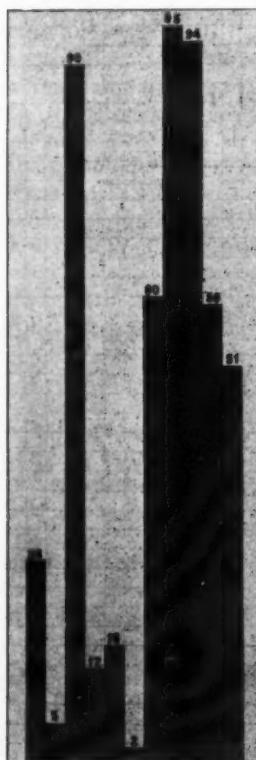


Fig. I

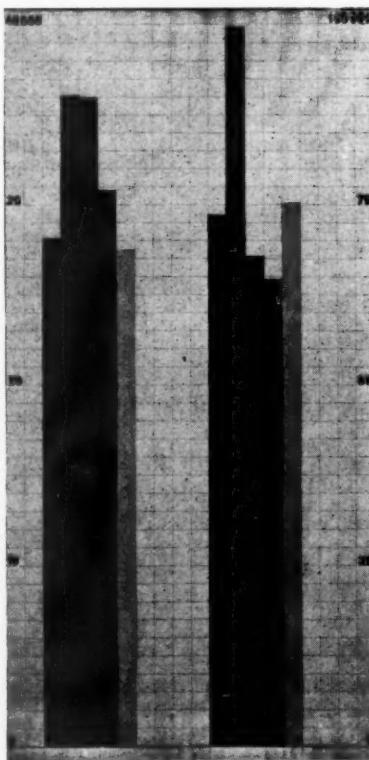


Fig. II

attention of the audience upon the importance of the safety problem and the results that may be expected from a general observance of accident prevention methods, the use of figures is not objectionable, and if the "spread" between the number of accidents before and after safety methods were instituted is sufficiently large, the use of the statistics may even be desirable.

There are two main objections to the use of statistics in presenting safety talks. The first is that statistics are always

boring to the audience, and the second, that even though people in the audience may be interested in the figures presented, it is necessary to use so many figures that it is impossible for them to retain them in their minds with sufficient accuracy to use them should they desire to do so. When safety talks are given to employees, it is generally desired to

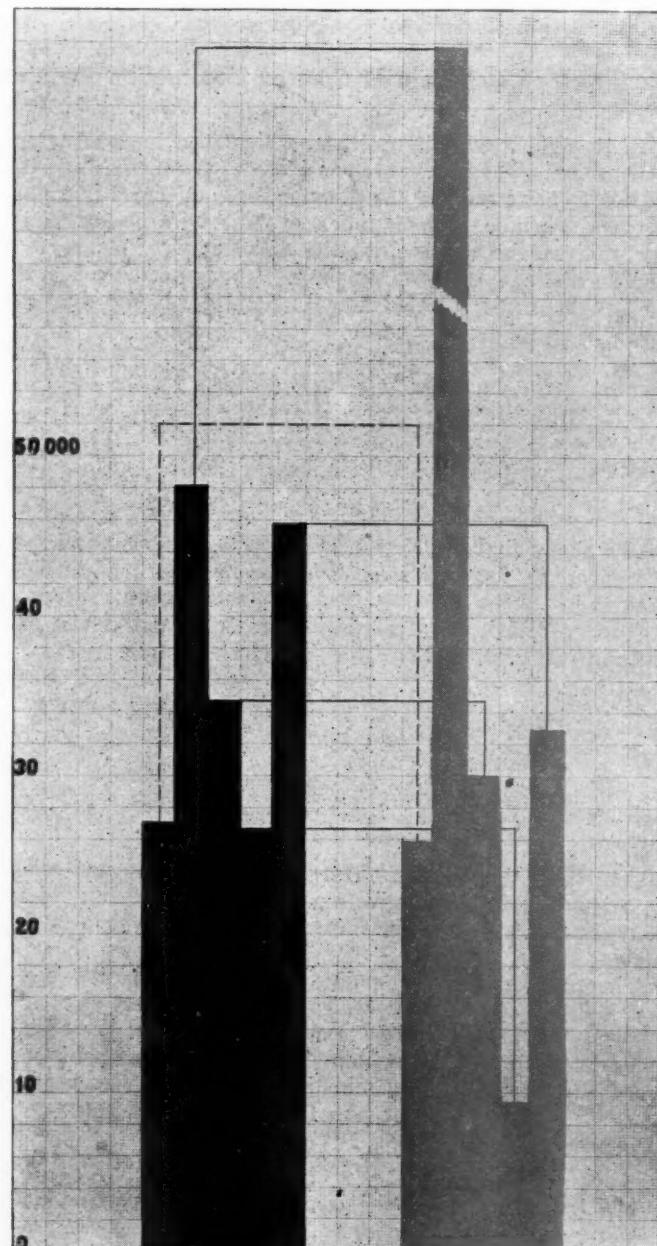


Fig. III

present particular situations to them, these situations usually being where there have been increases in certain types of accidents or to certain groups of employees. It has been found upon investigation that the employees rarely carry away with them the facts that the speaker wishes to impart, and seldom, if ever, get the figures so as to be able to quote them accurately.

With this in mind, upon being transferred from engineering activities to the conduct of safety work some years ago, the author undertook to endeavor to prepare charts representing accident prevention progress or lack of progress rather than to try to show these conditions through the use of statistics. The results secured in the use of these charts have been carefully studied and the following noted:

1. Charts showing results in circles, by serrated lines, or similarly, are not as effective as those using solid horizontal or vertical blocks.

2. That different charts must be made for addresses to

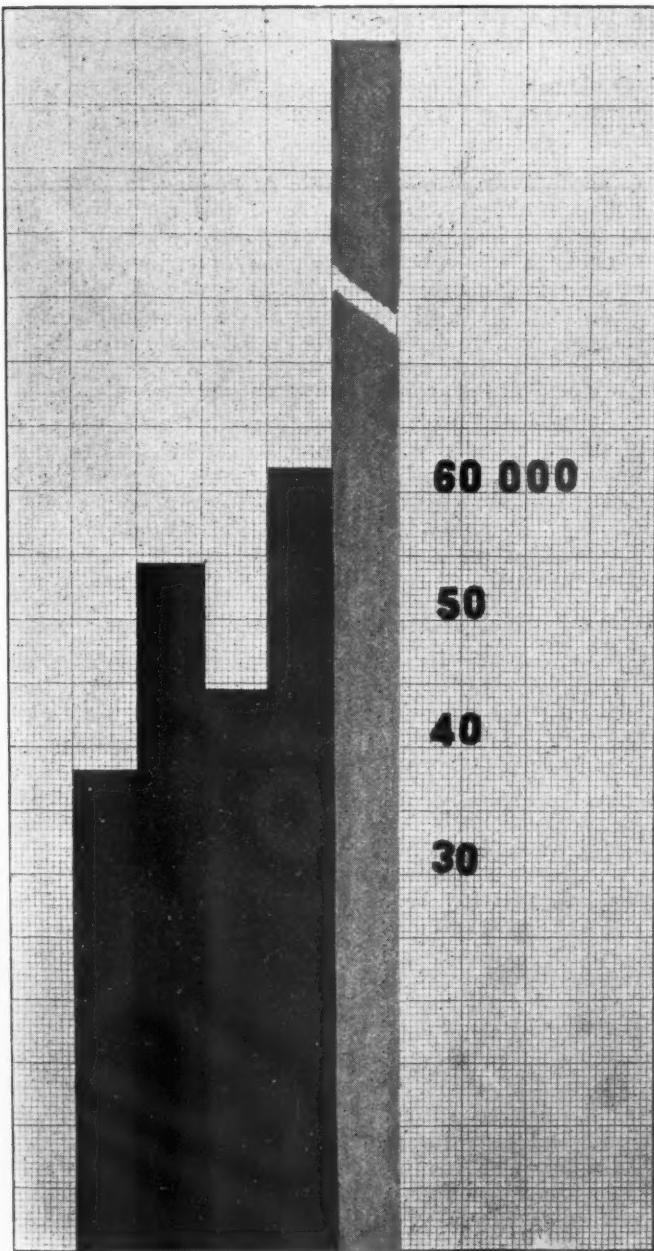


Fig. IV

different classes of employees; these charts being planned to fit the group intelligence.

3. As little as possible should be shown on each chart, and as few charts as possible should be used.

4. Charts must be made sufficiently large to be seen from all parts of the room, and it is especially desirable to make them commensurate with the size of the room; that is, extremely large charts should not be used in a small room, and small charts should not be used in a large hall.

For the convenience of the speaker, there should be placed at the bottom of each chart a type-written explanation of what each line represents, so that when the charts are displayed, it can easily be referred to. Large figures for the use of the audience should be displayed on the charts. In addition, tables of figures reflecting what the charts show should be mimeographed, and a copy handed to each person in the

audience so that he may follow the charts by means of these tables and can refer to them at his leisure.

Fig. 1 illustrates the causes of accidents on the particular road where it was used during the four-year period ending December 31, 1922. The classification of the Interstate Commerce Commission is used and this classification, together with the number of accidents represented in the charts, is shown in the type-written summary at the bottom. In presenting this chart, the speaker asks "What is causing accidents on this road?" Pausing for a reply which is not forthcoming, he goes on to say, "Is it moving machinery, engines, motors, etc., with the transmission apparatus, belts and gears, or the use of hand tools with no moving parts?" Pointing to the first and second columns, he then says, "You will notice that during the past four years a total of 31 accidents was caused by moving machinery and its appurtenances," and then pointing to the third column, "while 90 accidents were caused by the use of hand tools."

Calling attention to column 6, the speaker states that on a road with an electrically operated division and with all its shop machinery electrically operated, it would be assumed that many accidents would be caused by electric currents, but as shown in this chart, only two, or the smallest number of accidents due to a single cause, were the result of the use of electricity.

Pointing to the highest point in the chart, which shows a total of 95 accidents during the four-year period, the speaker asks, "Has anyone in the audience an idea as to what caused more accidents during this four-year period than any other cause?" No answer being forthcoming, he continues, "These 95 accidents were caused by 'falls of persons,'" and elaborating on this, shows how the causes of accidents are entirely different from what they might be assumed to be, and that things that can be guarded against mechanically are not the ones that are resulting in injury. The other causes of accidents are similarly treated.

Fig. 2 is a chart illustrating man-hours per non-train service casualty on the left, and locomotive-miles per train service casualty on the right. It will be noticed that different scales are used for these diagrams. The first four columns in the diagram on the left show the number of man-hours per non-train service casualty by years from 1919 to 1922 inclusive, while the fifth column, which is colored in red, shows the record for the first four months of the current year (the talk with which this chart was used was given during May). Similarly in the diagram on the right, the first four columns each represent a year, and the fifth, which is in red, the first four months of the current year. From these charts it can be seen how clearly the current record can be shown in comparison with records for preceding periods.

In Fig. 3, two things are brought out; first, a comparison of the accident record as between crafts, and second, a comparison between the record made by a craft during the four-year period ending December 31, 1922, and the four-month period that followed. The figure on the left, which covers the four-year period, is in black, and the figure on the right, which represents the four-month period, is in red. It will be noticed that guide lines connect the records of the same crafts in the two diagrams.

Fig. 4 shows the method used to illustrate the improvement or otherwise of the performance of a given craft. The illustration is for stationmen for a four-year and four-month period. As in other charts, the four-year period is shown in black and the four-month period in red. This chart was made especially to be used at a meeting of station service employees to show the consistent progress they are making in accident prevention endeavor.

The charts illustrated were selected because they are typical of the many others that have been used by the author. It will be noticed that being made up entirely of straight lines, the services of an experienced draftsman are not required.

The Business Man's Interest in Railway Net*

Reduced Valuation as Proposed by Radicals Will Not Cut Rates as Much as It Will Cut Service

By Samuel O. Dunn
Editor of the *Railway Age*

WHY HAS there prevailed so often and so long a public sentiment hostile to the railroads? This has been mainly due to the facts, first, that railway officers in their management of the properties have not given enough consideration to the effects that would be produced upon public sentiment, by what they did, and, secondly, that the officers of the railways, and other persons affiliated with the railways in interest, have allowed critics of railway management to occupy most of the field of public discussion of railway matters.

If government ownership of railroads is to be avoided—if the railways, under private management, are to be allowed to prosper, thereby making it possible for the entire business of the country, and especially of those who sell chiefly to railroads, to prosper—then, there must be created and maintained a better public sentiment regarding the railroads. As I have reflected upon the matter I have felt increasing surprise at how little real appreciation of this fact has been shown during the last 15 years by many of those who are most directly and vitally concerned. The railroad industry of the country has been, during most of this period, getting into worse and worse condition financially. This has been due chiefly to a public sentiment which has demanded and enforced a policy of government regulation which, with the exception of occasional years, has caused narrower and narrower restriction of the net return earned by the railways. It has been a popular sport of railway officers and some classes of business men to denounce regulating commissions and politicians because of this policy of regulation. But this policy has been adopted and carried out by regulating commissions and politicians because public sentiment has demanded and approved it. Persons simply deceive themselves who think otherwise. Politicians, regulating commissions, and, in the long run, even the courts do what they believe the public wants done, and they usually know pretty well what the public does want done.

This policy of regulation has been quite as injurious to the railways as dishonesty and inefficiency on the part of their managements would have been. But while all railway executives constantly have sought to promote the strictest rectitude and the greatest practicable efficiency in the operation of the properties in their charge, many railway executives have done extremely little to promote the creation of a public sentiment in their territories which would tend to cause the railways to be so regulated as to enable them to make profits in proportion to the integrity and efficiency of their operation.

Affiliated Interests Should Be Concerned

While the large financial interests that represent the owners of the securities, and control and direct the management of many railways, have insisted on honest and efficient management, they have done very little to help improve public sentiment regarding the railways. The railway equipment and supply companies of the country have suffered severely from reductions of the purchases made by the railways which have been caused by the way they have been regulated, but, excepting for the support given to the excellent work done by the Railway Business Association, many of the largest railway equipment and supply companies

of the country have done little or nothing to improve the public sentiment which has caused this regulation. Some of us who long have been very actively engaged in the struggle to secure better regulation of railways, and who, at the same time, have observed the merely platonic interest taken in this struggle by many of the great manufacturing concerns that are dependent for their business upon the railway market, have sometimes been led to speculate whether the managements of many of these large manufacturing concerns realized that it was just as much their battle as that of the railroads, that was being fought out, and to wonder when they would awaken to an appreciation of the fact that the outcome of this struggle will determine not only the future of the railroads, but also that of all the affiliated industries that are chiefly dependent upon the railroads for their market.

Net Return the Immediate Issue

The immediate issue, the vital issue, is the question, what net return the railroads of the United States shall be allowed to earn. The net return, as in any other business, is what is left out of the earnings after operating expenses and taxes have been paid. The Interstate Commerce Commission is making a valuation of the railroads as a permanent basis for regulating their rates. For use until the final valuation has been completed, it has placed upon the railways a "tentative valuation" which now amounts to \$19,500,000,000. It has held that for the present they are entitled to fix rates and make total earnings which will enable them to pay their operating expenses and taxes, and have, in addition, an average net return of $5\frac{3}{4}$ per cent upon this valuation. The making of this valuation is the result of the iteration and reiteration for many years of the charge that the railways are enormously overcapitalized. In 1913 Senator LaFollette of Wisconsin secured the passage by Congress of a law directing the Interstate Commerce Commission to make a valuation of all the railways. In 1920 Congress, in passing the Transportation Act, in effect directed the commission to base the advances in rates, which it was known would be necessary, upon a tentative valuation and in making this tentative valuation to use all the information it had thus far gathered in carrying out the provisions of the LaFollette law.

The final valuations of numerous individual railways which have thus far been published, and the tentative valuation placed upon all the railways, have grievously disappointed the expectations of Senator LaFollette and others who joined with him in getting the original valuation law passed. In consequence, they have attacked some of the final valuations which have been placed on the individual railways, and also the tentative valuation placed on all the railways, and have charged especially that the tentative valuation is excessive. It has even been charged that it is excessive to the extent of seven to ten billion dollars. They are seeking to get it reduced either by the passage of new legislation, or by exerting political pressure upon the Interstate Commerce Commission.

Many people believe, and radical labor leaders and politicians diligently encourage the belief, that the valuation finally placed upon the railroads will have a very important effect upon the total rates they will be allowed to charge. This is not true. The railways at present are paying out in

*From an address before the Railway Club of Pittsburgh on May 24.

operating expenses and taxes 85 per cent of all the earnings they derive from the rates they charge. This means that so long as present operating expenses and taxes prevail they will have to continue to collect from the public at least 85 per cent of the present rates merely to pay operating expenses and taxes, absolutely regardless of what valuation is placed upon their properties.

The valuation finally made will affect only that part of the rates and earnings that constitutes the net return of the railroads. Now, the net return at present amounts to only about one-seventh of the total earnings. In consequence a reduction or increase of the valuation will have little effect upon the rates the public must pay. An increase or a reduction of one billion dollars in the valuation now tentatively placed upon railway properties would affect the total passenger and freight rates the railways are allowed to charge by less than 1 per cent. A change of five billion dollars upward or downward in the total valuation would affect the total rates they are allowed to charge by about 4 per cent.

The Effect on Securing New Funds

But while the valuation finally made will have relatively little effect upon the total rates the railways will be allowed to charge, it will have a most important effect upon the net return the railways will be allowed to earn, and therefore on the interest and dividends they will be able to pay and the additions to and improvements in their properties they will be able to make. This is because the net return they are allowed to earn is based entirely and solely upon the valuation fixed, and therefore every increase or reduction of the valuation will increase or reduce the net return allowed to be earned in the same proportion. For example, a reduction of say \$3,000,000,000 in the valuation, would reduce the rates the public would have to pay at the present time less than 3 per cent; but it would reduce by almost 16 per cent the net return the railways would be allowed to earn. A reduction of \$7,000,000,000 in the valuation, as advocated by Senator Brookhart of Iowa, would save the public less than 6 per cent in rates, but would reduce the net return the railways would be allowed to earn by about 37 per cent. The valuation that should finally be made is properly a matter for determination, first, by the Interstate Commerce Commission, and secondly, by the courts, not by arbitrary legislation, as proposed by radicals. But while the decisions of commissions and courts will determine theoretically what net return the railways ought to be allowed to earn, they will not determine how much the railways must earn in order to provide the country with adequate and satisfactory transportation. That is a matter which will be determined, not by legislation, or by decisions of commissions and courts, but by economic laws and conditions.

Now, regardless of the technicalities of the subject, it is comparatively easy to estimate how much net return the railways must be allowed to earn in future if they are to be able to provide adequate and satisfactory transportation. The Interstate Commerce Commission has placed upon railway properties a tentative valuation which now amounts to \$19,-400,000,000, and has held that a fair return upon this valuation would be 5 3/4 per cent annually. A return of 5 3/4 per cent upon this valuation is roughly equivalent to a return of 5 1/2 per cent upon the investment in property shown by the railway companies' books. Now, in the 10 years before this country entered the war, there were five years in which the railways earned an average of about 5 1/2 per cent upon their property investment, and the earning of this net return resulted in an average annual investment of about \$700,-000,000 in new railroad facilities. There were five other years in that period of 10 years when the railroads earned an average of about 4 1/2 per cent on their property investment, and the earning of this return resulted in the making of an average annual investment in new facilities of only about \$400,000,000. In other words, before the war whether

the railways earned an average of 5 1/2 per cent or 4 1/2 per cent annually on their property investment made a difference of over 40 per cent in the average new investment made by them annually in new facilities with which to render more and better transportation service. There is no reason whatever for doubting that the same causes would produce the same effects in future.

It was estimated by the Joint Commission of Agricultural Inquiry of Congress in the report on "Transportation" made by it in 1921 that "at least \$750,000,000 per annum" in new investment should be made by the railways for several years in order to remedy the great and increasing shortage of transportation. Other authorities have estimated that the annual new investment made in railroads should be over a billion dollars a year. It is by no means certain that if the railways are allowed to earn in future an average return of 5 3/4 per cent upon a valuation equivalent to that now placed upon them by the commission, they will be able to raise all the new capital required adequately to increase their facilities. But one thing is certain; this is that if a substantially lower valuation than the present one is placed on the railways, and the net return they are allowed to earn is correspondingly reduced, they will not be able to raise the new capital and make the enlargements and improvements in their properties necessary to enable them to handle the country's increasing commerce.

The Reason for the Attacks

The question will naturally arise in the mind of any man who has not carefully followed the course of the propaganda against the railways which has been carried on for some years, and especially since they were returned to private operation, as to why the attacks upon them have been and are being concentrated upon their capitalization and valuation, and especially upon their net return, when it is so easy to show that the net return they are allowed to earn has relatively little effect upon freight and passenger rates.

This is partly due to the ignorance of many people who participate in these attacks. They sincerely believe that the railways are overcapitalized and overvalued, and that "squeezing out the water" would cause a large reduction of rates.

But this is not the reason why most radical public men and labor leaders concentrate their attacks upon the net return. They do not attack the wages of railway employees, which constitute most of the operating expenses, because they want the support of railway employees. They do not attack the taxes levied on the railways, which for some years have amounted to more than the dividends paid by them, because it is in accordance with the general political and economic philosophy of all radicals that large business concerns and people of wealth shall be heavily taxed. They attack the net return of the railroads and seek to reduce it because practically all of them are hostile to private ownership and management of railroads. They know that net return is the very life blood of every business.

Suppose, now, that by political propaganda and pressure upon the Interstate Commerce Commission they should succeed in securing a large reduction in the valuation, and a corresponding reduction in the net return the railroads were allowed to earn. By rendering it impossible for the railways to pay interest and dividends upon a large part of their existing stock and bonds, this would ruin many of the owners of their securities and imperil the solvency of numerous great fiduciary institutions, such as trust companies and life insurance companies, which are the largest owners of railway securities. It would render it impossible for most railroads to raise new capital with which to buy new equipment and make improvements in their properties. This would cause a very large reduction in the purchases the railroads would be able to make, with disastrous effects upon the railway equipment and supply manufacturing industry of

the country, and upon all the other industries, such as those engaged in the manufacture of iron, steel, and lumber, which derive a large part of their business from the railroads. The inability of the railways to make the enlargements and improvements in their properties necessary to enable them to handle the country's increasing commerce would finally arrest the increase of all production and commerce. Those who for political purposes are seeking to secure a large reduction in the valuation of the railways are recklessly disregarding the plain economic facts of the situation. If the policies they advocate should be adopted some very small reductions of rates would be secured, at the cost of a great increase in the present shortage of transportation, of a drastic limitation of the country's production and commerce because of this increase in the shortage of transportation, and finally, of a great industrial and financial disaster due to the eventual stoppage of the growth of our production and commerce.

I have said that the outcome of this struggle over the railroad problem would be determined by public sentiment; what public sentiment shall be in future rests principally with railway officers and those who are affiliated closely with the railroads in interest. The number of those who are closely affiliated with the railroads in interest is much larger than is generally realized.

First, railway officers should be sparing no effort to so operate the properties as to cause them to render the largest amount of service possible in the most satisfactory manner practicable. No better evidence of the energy and ability of the railway executives and officers of this country could be afforded than the way in which they have made the railroads during the last nine months handle a freight business largely exceeding any that was ever handled before, in spite of the handicaps resulting from the coal strike and the shop employees' strike. One of the best things ever done to improve public sentiment toward the railroads was done when the railway executives, a few weeks ago, met in New York and adopted a program for not only increasing the freight business handled to the utmost extent possible, but also for seeking the co-operation of the public in doing so and for constantly giving to the public information as to the results secured. For the railroads to render the public the most and best service they can under such conditions as now exist and in addition to spare no effort to make the public know and understand what they are doing for it, is public relations work of the very highest order.

Secondly, however, the officers of the railways and of all concerns that are closely affiliated with the railways in interest, should be diligently educating themselves regarding the issues involved in the present struggle over railroad regulation and the facts bearing on those issues. There is no evading this struggle. It must be fought out to a finish. Twenty-seven years ago we had a great political struggle in this country over the question of sound money. The outcome of that contest was largely due to the fact that the business leaders of the country took an intense interest in it and educated themselves regarding the matters in controversy.

Thirdly, they should be engaged in educating all classes of the people regarding the railroad question by every available means, and through every available channel. If the people are to be educated regarding this railroad question the initiative, the energy, and the money for carrying on a campaign of education must first be supplied by those most directly concerned, including the railroads, the railway equipment and supply manufacturing industry in all its ramifications, and our large financial institutions. Experience has plainly shown that public men of even conservative views will not squarely meet the attacks of the radicals upon the railroads unless those whose interests are most directly imperiled will first show the intelligence and courage to do so.

It is expecting and asking too much to expect and ask public men to risk their political fortunes in a struggle with radicalism when business men who will lose the most if these attacks are successful will not themselves take a hand in the fight.

Everybody cannot make speeches, but many can do so and anybody can inform himself as to the facts regarding the railroad question and use them to set his neighbors right.

In the sound money campaign of 1896 the large business concerns of the country placed literature regarding the money question in the hands of their traveling salesmen, and the traveling men of the country did much to win the battle for sound money. If every traffic representative, local attorney, local surgeon and station agent of the railways were made a walking delegate on the railroad question in his own territory or community, the results secured in educating public sentiment would be surprising. If every manufacturing concern which is dependent on the railroads for business, and every financial institution which owns or deals in railroad securities, would enlist its salesmen and other representatives in this struggle over regulation of railroads, public sentiment regarding the railroads in many parts of the country would soon be greatly changed.

There is a great deal of literature advocating sound regulation of railroads being prepared. It is not being widely enough distributed and read. It is reaching only a small part of the people that ought to be reading it. There are many misrepresentations of railroads being published. They all ought to be answered, but a large part of them are being left unanswered. The great trouble is, there is a vast amount of work that needs to be done to educate the public regarding the railroad question, while there are few people who are actually doing anything. When every man in this country who is directly concerned as to the outcome of this struggle over the railroads begins to take an active part in it, instead of sitting on the bleachers, like the crowds at a baseball game, and criticizing the few men who are playing the game the best they can, we shall begin to make some progress in the education of public sentiment regarding the railroad question.

There is far more involved in this struggle over the railroads than most people seem to realize. The railroads are the first to meet the full force of the drive being made by radicals of all kinds against the existing industrial and political institutions of the United States. If the attempts being made largely to confiscate railroad property and to force the railroads into government ownership are successful, similar attacks will immediately be made upon coal mines, manufactures and other forms of property. If you think this is not a serious matter, let me direct your attention to the condition of affairs in England. There the Labor Party is now the second strongest party in Parliament, and it is advocating a huge levy upon capital to pay the national debt, the nationalization of railroads, coal mines, shipping, land and every other kind of property which is used in the production or distribution of wealth, and the adoption of other measures which would destroy all private property and establish a socialist state.

The English are naturally a more conservative people than we are, and yet, because the very kind of propaganda with which the railroads are now being assailed in this country has not been treated seriously and combated effectively in England, that country is today living under the imminent threat of the establishment of a labor-socialist government.

The propaganda being carried on against the railroads in this country is really only a part of the propaganda being carried on against all private property, and it is high time that all those who own property, or who desire to own it, should begin to participate actively in combating this propaganda as a very important means to securing the right settlement of questions whose right settlement is essential to the welfare of all of us.

General News Department

On August 12, the Atchison, Topeka & Santa Fe began operation of its new 35-mile line from Owen, Okla., to Pawhuska. This line runs through the Osage Indian reservation and will serve five new towns.

A reward of \$100 has been offered by the management of the Rock Island to the officer or employee of the road who, by his efforts, makes the largest amount of saving in the cutting out of waste in labor or material during the month of August.

The St. Louis-San Francisco will resume the publication of its monthly employees' magazine beginning September 15. Floyd L. Bell, director of public relations, will be the editor of the magazine and Harry C. James, advertising manager, will be business manager of the publication.

Harry J. Bell, secretary and manager of the Chicago Safety Council and formerly in charge of the safety program of the roads in the Northwestern region of the United States Railroad Administration, has resigned to become manager of the safety division of the Milwaukee Association of Commerce.

Wage Increases Authorized

Wage increases of three cents an hour to signal maintainers, assistant signal maintainers, signalmen and assistant signalmen and four cents an hour to helpers, has been granted by the Pittsburgh & Lake Erie.

Newspaper Editors Can Exchange Advertising for Mileage in Alabama

According to an act passed last week by the legislature of Alabama and signed by the governor, railways will be permitted to purchase advertising space from newspapers giving mileage tickets in exchange therefor.

Business Placed Under Public Utilities Commission in Kansas

At a special session of the Kansas State Legislature a bill has been passed placing automobile passenger and freight lines under supervision of Public Utilities Commission as common carriers and subject to same regulations as other common carriers.

New Canadian Officers for Clerks' Union

At the recent session of the International Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employees, which was held at Calgary, Alta., the following officers of the organization, representing clerical and station employees on Canadian roads, were elected: J. L. Pateman of Winnipeg, Man., general chairman; J. J. Bell, of Moosejaw, Sask., vice-chairman, and F. G. Greenway of Saskatoon, Sask., general secretary and treasurer.

Mikado Decorates B. O. Johnson of N. P.

The Order of the Sacred Treasure has been conferred upon B. O. Johnson, assistant to the vice-president in charge of operation of the Northern Pacific, by the Mikado of Japan for distinguished service as colonel in charge of allied railway operations in Siberia during the late war. Mr. Johnson served in Siberia in railway work for five years and returned to the United States to resume service with the Northern Pacific about the first of this year. Before his departure for foreign service, he was superintendent of the Montana division of the Northern Pacific with headquarters at Livingston, Mont.

Tool Foremen's Convention

The American Railway Tool Foremen's Association will hold a convention this year at the Hotel Sherman, Chicago, on August 29, 30 and 31. The 1921 committees have been continued, and papers and discussion will pertain to the following five topics: Forming and Combination Punches and Dies; General Tool Grinding and Use of Jigs on Grinders; Forging Machine Dies; Jigs and Devices for Locomotive and Car Shops; General Reclamation of Shop Tools and Shop Equipment.

Plan Campaign for Safe Handling of Household Goods

A special campaign during the month of September for better packing, marking and handling of household goods is planned by the Freight Claim division of the American Railway Association. In this drive, the association will have the co-operation of the National Furniture Warehousemen's Association, the American Warehousemen's Association and the American Railway Express Company. Educational circulars will be distributed to shippers and those having to do with the handling of the freight.

Southern Railway Offers \$100 for Best Fuel Paper Written by Employee

The Southern Railway will award a cash prize of \$100 to the engineman, fireman, brakeman or conductor among its employees who makes the best contribution from the Southern in the contest being conducted by the International Railway Fuel Association. This prize will be given for the best paper written by a Southern employee regardless of whether it wins the association's prize or not.

Tank Car Specifications

The general committee of the A. R. A. has announced that at the request of certain owners and upon recommendation from the committee on tank cars, the effective date of the requirements of Section 7 (c) of the Specifications for Class I and II Tank Cars, and the last paragraph of Section 7 (d) of the Specifications for Class III and IV Tank Cars is further extended to February 1, 1924. The sections of the Tank Car Specifications referred to provide that no nipples, valves or other attachments shall project below the bottom outlet cap except while car is being unloaded.

Firemen and Switchmen to Meet

on Wage Increase Demand

More than 350 general chairmen representing firemen, hostlers and yard switchmen who are members of the Brotherhood of Locomotive Firemen and Enginemen and the Switchmen's Union of North America will meet separately in Chicago on September 6 to discuss the amount of proposed wage increases to be demanded this fall. Although unconfirmed, a report is prevalent that a wage increase of twenty-five per cent is to be asked. The last change in wages of these employees was a decrease of 12½ per cent on July 1, 1921, under decision 147 of the Railroad Labor Board.

Detroit Terminal Protests P. R. R.

Detroit Belt Line Plan

The Detroit Terminal has protested to the Michigan Public Utilities Commission against the plans of the Pennsylvania to construct a new belt line around the city of Detroit, Michigan. The contention of the Detroit Terminal is that it is capable of handling all Detroit terminal business and that it is increasing its facilities 35 per cent and that it is entitled to the Detroit business because it pioneered and developed the field. The Pennsylvania declares that the volume of

traffic is sufficient to warrant two belt lines around the city. The Pennsylvania has already arranged for a right-of-way part way around Detroit and plans the extension of its Lines East past the Ford Motor plant at Highland Park paralleling the Detroit Terminal Lines for about three miles to the Dodge Brothers' factory.

President Considers Threatened Anthracite Strike

One of the first problems considered by President Coolidge during his first day in the White House, August 13, was the threat of an anthracite coal strike when the present wage agreement expires on August 31. After a conference with Secretary Hoover, Secretary Weeks and George Otis Smith, acting chairman of the United States Coal Commission it was announced that the coal commission had invited the representatives of the mine operators and the union to a conference with the coal commission immediately for purposes of mediation and a meeting was arranged to be held in New York on Wednesday. At the White House it was stated officially that plans have been perfected for supplying an adequate amount of substitutes for anthracite coal in the event of a strike so that the situation could not be so serious as that which existed last year when both the anthracite and bituminous mines were closed.

Annual Convention of Freight Traffic Officers

The annual convention of the American Association of Freight Traffic Officers will be held at St. Louis, Mo., on October 23. The tentative program is as follows:

- 10:15 a. m. Meeting called to order.
- 10:30 a. m. Address by R. H. Aiston, president, American Railway Association.
- 11:00 a. m. Address by G. H. Ingalls, chairman, Traffic division, American Railway Association.
- 11:15 a. m. Address by R. C. Wright, chairman, Committee on Service, Demurrage and Storage.
- 11:30 a. m. Address by James Menzies, member, Committee on Standard Containers, Marking and Packing.
- 11:45 a. m. Address by Colonel A. S. Dodge, chairman, Committee on Weighing and Inspection of Freight Traffic.
- 2:00 p. m. Address by Archibald Fries, chairman, Traffic Publicity committee, Association of Railway Executives.
- 2:30 p. m. Address by chairman, Development and Industrial Sections committee.
- 3:00 p. m. Business meeting and election of officers.
- 7:00 p. m. Annual banquet.

Members of the association are asked to send to Grant Williams, secretary-treasurer, 1341 Railway Exchange building, Chicago, a list of the subjects which they desire considered at this meeting.

78 Per Cent of P. R. R. Employees Vote in Employee Representation Elections

A complete report of the elections which have been held this year on the Pennsylvania shows that a large majority of the employees concerned participated in the voting. Participation in these elections which were to fill expiring terms of employee representatives in the various departments of the railroad was far greater than the average at municipal, state and even national elections.

The total number of eligible employees in the shop crafts, clerical and miscellaneous forces and the maintenance of way forces, in which elections were held this year was 141,439. Of this number 110,918 participated in the balloting. In other words the employee representatives who deal with the management on behalf of these groups in matters of wages, working rules and other questions of mutual concern actually represent approximately 78.5 per cent of these employees.

The latest returns to be tabulated cover the maintenance of way department for the entire Pennsylvania. Out of a total of 51,446 employees in this group, 36,682 or 74.9 per cent voted in the elections. Out of all the ballots cast, only five per cent were thrown out by the tellers as improperly voted. The vote in the Eastern Region was 80.1 per cent; in the Central Region, 74.5 per cent in the Northwestern Region, 69.7 per cent and in the Southwestern, 63.7 per cent.

The voting in the other classes was as follows: shop crafts, three regions and Altoona Works, 85 per cent; clerical forces, entire system, 77.9 per cent; miscellaneous forces, entire system, 66.9 per cent. The shop crafts in the Southwestern Region, the only one now missing, vote in the fall.

Memphis Freight Bureau Opposes

Change in Transportation Act

The Board of Directors of the Memphis Freight Bureau adopted a resolution on July 25 opposing any change in the Transportation Act and all measures looking to the compulsory consolidation of railways. Copies of this resolution were sent to the President of the United States, to Senator McKellar and to Congressman Fisher, with the expression of the hope that they will concur in these views and aid in allaying the agitation for measures adverse to the interests of shippers, the carriers and the country at large. This resolution read in part as follows:

Whereas, The railroads of the United States have so greatly improved their equipment and operating conditions since private operation and control as to meet the demands of the country in handling more freight efficiently between July 1, 1922, and March 31, 1923, than was ever handled before in the same period, exceeding 134 million cars; and,

Whereas, These carriers are, by the very best methods of management and the employment of large investments in freight and passenger equipment—locomotives and cars, increased terminals, improvement of shops, station houses, etc., preparing to serve the public more efficiently and satisfactorily; and,

Whereas, In the manner hereinbefore set forth carriers are being enabled to earn what Congress has said they should be permitted to earn—a reasonable income on the capital invested in the transportation service; and,

Whereas, They are calling upon the shipping public for the formation of a board composed of shippers or their representatives to co-operate with managers of the Car Service division of the government and association of railroads in a more satisfactory distribution of cars among shippers.

Therefore, The board of directors of the Memphis Freight Bureau in regular session resolves:

(a) That it again declares its purpose to support and co-operate with the carriers in their efforts to improve their facilities and service to the public and make their operations more and more effective, economical and profitable.

(b) That it deplores the political agitation looking to a change in the Transportation Act, thereby complicating the situation and depriving carriers of revenues which are necessary to their successful and satisfactory operations.

(c) That it opposes any and all attempts to force the establishment of freight or passenger rates, except through the well established government agency, the Interstate Commerce Commission.

(d) That it opposes all measures looking to the compulsory consolidation of our railroads into a few units, believing it to be contrary to the public interest, as it will inevitably reduce competition between carriers, which is so valuable to shippers, and will tend largely to the further consolidation of federal ownership and control, which this board believes would be most disastrous to the commercial interest and general welfare of the country.

Bridge and Building Association Will Meet in Seattle

The American Railway Bridge and Building Association will hold its thirty-third annual convention at the Hotel Gowman, Seattle, Wash., on October 16-18. Special cars for the convention will leave New York on Friday afternoon, October 5, connecting at Chicago with a special train leaving that city late Saturday night. Stops will be made en route to visit the new shops of the Chicago, Burlington & Quincy at Denver, the hanging bridge in the Royal Gorge of the Arkansas and the relocation of line at Soldier Summit, Utah, on the Denver & Rio Grande Western, the Salt Lake trestle of the Southern Pacific and logging and lumber operations in the vicinity of Baker and Portland, Ore., and Tacoma, Wash.

The program for the convention is as follows:

TUESDAY, OCTOBER 16

Convention called to order at 10 a. m.

Address of welcome by R. J. Middleton, assistant chief engineer, C. M. & St. P., Seattle, Wash.

President's address.

Reports of officers and appointment of special committees.

Report of Committee on Tool Equipment for Bridge, Building and Water Service Maintenance Gangs.

Report of Committee on Heating Small Passenger Stations.

Address on Relation of Employees to the Public by Judge G. T. Reid, vice-president and western counsel, N. R., Seattle, Wash.

Report of Committee on Methods of Installing or Replacing Culverts, Sewers and Pipe Lines under Traffic.

WEDNESDAY, OCTOBER 17

Report of Committee on The Repair and Renewal of Ballast Deck Trestles.

Address by Macy Nicholson, general manager Lines West, C. M. & St. P., Seattle, Wash.

Report of Committee on Relative Merits of Concrete, Cast Iron and Corrugated Metal Pipe Culverts.

Paper on Concrete Water Tanks by C. R. Knowles, superintendent water service, I. C., Chicago.

Report of Committee on Water Facilities for Stock Yards—Their Construction and Maintenance.

Paper on Snow Sheds on the Great Northern.

THURSDAY, OCTOBER 18

Report of Committee on Practicability of a Uniform Painting Program for the Entire Year.

Paper on The Supervision of Bridge and Building Forces by George W. Rear, bridge engineer, S. P., San Francisco, Cal.

Closing business.

Traffic News

All previous records for the handling of cream and milk by the St. Louis-San Francisco into St. Louis, Mo., and Kansas City were broken during the first 6 months of this year when cream and milk products with a wholesale value of \$3,000,000 were carried. The shipments included 2,500,000 gal. of cream and butter fat and 900,000 gal. of milk.

A voluntary reduction of 25 per cent in freight rates on wheat and flour for export was urged upon the railroads in a letter addressed by Senator Capper of Kansas to J. E. Gorman, president of the Chicago, Rock Island & Pacific, as acting chairman of the Western Presidents' Conference Committee. The western roads had recently declined to take such action when requested by the Omaha Grain Exchange.

Transcontinental Roads Want to Meet Canal Rates

R. H. Countiss, chairman of the Transcontinental Freight Bureau, has filed with the Interstate Commerce Commission a fourth section application for authority for the transcontinental roads to make reductions in rates from Chicago and points west that will enable them to meet some of the competition at Pacific coast points of rates via the Panama canal, without cutting rates to intermediate points. An early hearing was requested because of the large volume of business that is being taken from the rail lines by the water competition. The application covers 47 items, of which 16 are iron and steel articles. Among the others are boiler compounds, ammunition, dry goods, electrical machinery, packing house products, paints, paper bags, rails and fastenings, rice, roofing, soap, sodium, tinware, vehicle parts and wire cable and wire articles.

Anthracite Shipments—July, 1923

The shipments of anthracite for the month of July, 1923, as reported to the Anthracite Bureau of Information, Philadelphia, amounted to 6,260,053 gross tons as compared with 6,634,787 tons during the preceding month of June, a decrease of 374,734 tons or 5.6 per cent. The decrease was due to Independence Day celebrations, and the fact that there were five Sundays in July, reducing the working days to 25 against 26 in June. July shipments show an increase over the same month in 1921, when 5,462,760 tons were shipped, of 797,293 tons or 14.6 per cent. The July shipments this year were about 535,000 tons above the average shipments for that month in recent normal years.

Shipments by originating carriers were as follows:

	July 1923	July 1922	July 1921	June 1923
Philadelphia & Reading....	1,155,701	S	1,039,078	1,165,468
Lehigh Valley	1,124,400	U	946,387	1,188,497
Central Railroad of N. J....	494,254	S	507,942	563,304
Del., Lackawanna & Western.	965,446	P	926,850	1,009,505
Delaware & Hudson.....	879,772	E	691,132	961,703
Pennsylvania	520,423	N	384,780	556,291
Erie	661,120	S	619,365	690,172
N. Y., Ontario & Western.	152,543	I	110,605	162,353
Lehigh & New England....	306,394	O	236,621	337,494
	6,260,053		5,462,760	6,634,787

THE CUBAN CONGRESS is said to plan the passage of the Tarafa railway consolidation bill over the President's veto. This bill would provide for the consolidation of railways owned by sugar companies, forbid the building of private ports by these companies and establish an export tax on sugar shipped through private ports already established. The private railways so established would become common carriers charging the same rates as other lines. The bill would benefit the Cuban railways but not the sugar producers which own their own railways and ports. The United States government has protested against the bill and the Cuban Senate is delaying action on it.

Commission and Court News

State Commissions

The Nebraska State Railway Commission in a recent opinion has held that it has jurisdiction over industrial sites on railway lines and has a right to fix rental charges commensurate with a reasonable return on a reasonable value of the land leased and occupied. The complaint was filed by the Nebraska Farmers' Cooperative Grain and Live Stock Association and the Nebraska Farm Federation against the Chicago & North Western, the Union Pacific and the St. Joseph & Grand Island. It was claimed that unreasonable and increasing charges for leaseholds for elevator sites located on rights-of-way were being assessed by the roads. The roads contended that nominal rentals produced discriminatory conditions and that the federal government alone has control. They further claimed that relations between railways and leaseholders are purely private and not subject to state control, and that the railways own the ground and do not have to lease it unless they so desire.

Personnel of Commissions

James C. Davis, director general of railroads in charge of the liquidation of the affairs of the Railroad Administration, and also the agent of the President in litigation involving the government's possession of the railroads during the period of federal control, has been reappointed by President Coolidge, dating from August 3, as his tenure of office expired with the death of President Harding.

Court News

Forty-Eight Hour Period Runs from

Time of Mailing Notice of Arrival

New York Appellate Term holds that the 48-hour period in a provision restricting liability for goods not removed within 48 hours after notice "sent or given" runs from the time notice is properly mailed, not from the time consignee receives it.—Rotundo v. Erie, 198 N. Y. Supp. 688.

Evidence Insufficient to Show Negligence of Company in Injury to Switchman

The South Carolina Supreme Court holds that evidence that a switchman was injured while coupling freight cars by a brick falling from a car was insufficient to show negligence of the company, without showing how or by whom the brick was left on the car.—Nichols v. Seaboard Air Line (S. Car.), 115 S. E. 323.

Test of Railroad Company's Liability for Slander by Its Employee

The Arkansas Supreme Court holds that to establish liability against a railroad corporation for slander, the utterance of the slander must be shown to have been made by its authority or ratified by it, or to have been made by one of its servants or agents in the course of his employment.—Polk v. Missouri Pacific (Ark.), 245 S. W. 186.

Arkansas State Commission Cannot Enforce Contract for Joint Use of Wye

The Arkansas Supreme Court holds that the state Railroad Commission had no power to determine and enforce the rights of two railroads under a contract for the joint use and maintenance of a wye track, the construction and enforcement of such contract being for the courts. The fact that shippers had established warehouses on the track was immaterial.—St. Louis-San Francisco v. Missouri Pacific (Ark.), 245 S. W. 896.

Questions of Classification of Freight for I. C. C.

The Commission of Appeals of Texas holds that, in view of U. S. Comp. St. §8569, subd. 7 and §8573, where there is a question of fact as to classification, as to pig or scrap lead, a claim for overcharge must be referred in the first instance to the Interstate Commerce Commission for its action and award, such award being a prerequisite to an action in the state courts.—St. Louis Southwestern v. Goldstein (Tex.), 245 S. W. 226.

Cotton Left on Platform by Custom Makes Railroad Liable as Warehouseman

The South Carolina Supreme Court holds that if a railroad company has acquiesced in the custom of allowing cotton to be placed and to remain on its platform, in anticipation of a sale and subsequent transportation, even though such deposit was for the owner's convenience, it would assume the relation of warehouseman or bailee.—Parler v. Davis (S. Car.), 115 S. E. 818.

Rock Projection Too Near Cab

Window Negligent Construction

The Pennsylvania Supreme Court holds, in an action for the death of an engineer, that it is negligence for a railroad company to have its roadbed so constructed that a rock projects from a cutting to within six inches of the cab window, since engineers should have a reasonably safe place to work, it being their duty to lean out of cab windows to observe the track ahead of them.—Mumma v. Philadelphia & Reading (Pa.), 119 Atl. 287.

Res Ipsa Loquitur Rule Not

Applicable to Engine Stalling

The New York Appellate Division holds that where a yard engine with a string of cars stalled on the main track and was hit by a freight train, there being no evidence of negligence in operation, or of defective conditions of the engine, the rule of *res ipsa loquitur* did not apply, and the mere fact of the engine stalling did not establish negligence of the railroad.—Twell v. Lehigh Valley, 203 App. Div. 254, 196 N. Y. Supp. 883.

Damages for Loss of Coal Under

Cummins Amendment

In an action for loss in transit of a portion of a carload of coal the Iowa Supreme Court holds that the measure of damages, under the Cummins Amendment, of the consignee, a wholesale and retail dealer, is not his loss of profit where he had enough coal in storage for his business needs, but his actual loss being cost of coal at the mine, plus freight, if paid, and war tax, without any allowance for unloading, cartage, overhead, or profit.—Brown Coal Co. v. Illinois Central (Iowa), 192 N. W. 920.

The Payment of Customs Duties by Carriers

The New York Supreme Court, Special Term, holds that when goods have passed the point of entry without payment of duty, the consignee, and not the carrier, is liable for the duties thereafter imposed (U. S. v. Wells-Fargo & Co., 271 Fed. 180). If the carrier, while in possession, pays the duty to prevent the goods being held by government officials at the point of entry, it may collect same from the consignee. If it pays the duty after delivering the goods to the consignee it does so as a mere volunteer, and cannot collect.—American Ry. Express Co. v. Heilbrunn, 198 N. Y. Supp. 801.

South Carolina Railroads Must be

Operated by Domestic Corporations

Under the South Carolina Constitution, a foreign corporation cannot operate a railroad in South Carolina at all, and the South Carolina Supreme Court holds that a South Carolina corporation, under whose charter the railroad of a foreign corporation and its business is being managed and operated, is necessarily limited in its contracts to business done in South Carolina, or to business outside the state necessarily connected with its operation in South Carolina, and such as its charter authorizes it to do in South Carolina.—Blue Ridge Power Co. v. Southern (S. Car.), 115 S. E. 306.

Foreign Railway News

Irak Railway Turned Over to Government

On July 1 the Irak Railway was turned over to the Irak government by the British government, which has been operating the line. This railway runs southward from Bagdad in the Euphrates valley to Basra (about 300 miles) and northward in the Tigris valley about 150 miles to Kalaat Shergat which is only about 100 miles south of Mosul. The extension of the line to Mosul, the center of the wheat and oil region, will be one of the first undertakings to be commenced.

The Booster Being Tested in

Passenger Service in England

The locomotive booster has been applied to an Atlantic type locomotive of the London & North Eastern Railway for experimental purposes—the first booster to be applied in England. The locomotive, which, according to the Railway Gazette (London) is the company's No. 1419, was built in 1910. This locomotive has 20 in. by 24 in. cylinders, is equipped with a superheater and weighs 165,984 lb. in working order, exclusive of the tender. It develops 17,340 lb. tractive effort at 85 per cent of boiler pressure without the booster and to this the booster adds another 8,500 lb., giving an increase of almost 50 per cent. The locomotive is, of course, in passenger service and it is in this service with an 18-car train that the booster is being tested.

The company has 120 locomotives of this type, the first of which were built in 1902 and all of which have been successful in service. With the increasing train-load, however, the low adhesion of the type has made their operation increasingly difficult. If the application of the booster is successful in overcoming the difficulties of starting and of operation on heavy grades, it is thought that the period of usefulness of the locomotives may be considerably extended. The application of the booster and the tests are under the supervision of H. N. Gresley, chief mechanical engineer of the company.

Mexican Government to Extend K. C. M. & O.

The Mexican government will finance and extend the Kansas City, Mexico & Orient Railroad in the State of Chihuahua northward from Falomir in that state, across the Concho River, to within thirty miles of Presidio, Texas, thereby making retribution in part for the damage done Orient properties in Mexico during the years of the revolution, according to an announcement by W. T. Kemper, receiver for the Kansas-Oklahoma divisions of the Orient and president of the Texas system at San Angelo, Tex., recently.

Extension northeastward of the Orient in Mexico will shorten to less than 100 miles the 161-mile gap between Alpine and the line in Chihuahua. This gap is the principal obstacle in the way of completing the transcontinental line.

The grade and bridges are already built on the new extension toward the Rio Grande and the money advanced by Mexico will be used for laying steel and doing a small amount of work on the fill, according to Mr. Kemper. With the Concho river crossed, a highly productive valley will be made available for agricultural development. Its products can then be shipped over the Orient to Chihuahua City and on to Mexico City, and the increased revenue will hasten the day when the line can be constructed south from Alpine, the present terminus, through Presidio county, across the Rio Grande, and to a connection with the road from Falomir. After this plan has been carried out, the only gap remaining to be closed in order to complete the transcontinental line will be between Sanchez, the present western terminus of the Chihuahua division, and Fuerte, Mexico, across the Sierra Madras mountains, the present eastern terminus out of Topolobampo, Pacific coast port, and the Orient's greatest goal. This gap is 209 miles. Aid of Mexico in closing this gap may later be obtained.

Equipment and Supplies

Locomotives

THE NORFOLK & WESTERN is inquiring for 10 tender tanks of 15,000 gal. capacity.

THE PUBLIC SERVICE CORPORATION OF NEW JERSEY is inquiring for a 6-wheel tank switching locomotive.

THE TORONTO, HAMILTON & BUFFALO has ordered 2 Pacific type locomotives from the American Locomotive Company.

THE CALIFORNIA WESTERN RAILROAD & NAVIGATION COMPANY has ordered 1, 4-6-0 type locomotive from the Baldwin Locomotive Works.

Freight Cars

THE NORFOLK & WESTERN is asking for prices on the repair of 1,000 hopper cars of 57½ tons' capacity.

THE CHICAGO & ALTON is inquiring for 350 steel gondola cars, 260 steel composite gondola cars and 250 automobile cars.

THE ZIMMERMAN-WELLS-BROWN COMPANY, Portland, Ore., is inquiring for from 135 to 150 logging cars of 50 tons' capacity.

THE NEW YORK, CHICAGO & ST. LOUIS has ordered 100 steel underframes for box cars from the Pressed Steel Car Company.

THE NEW YORK CENTRAL will have repairs made to 500 box cars in the shops of the Ryan Car Company, and repairs to 200 box cars made in the shops of the American Car & Foundry Company.

Iron and Steel

THE WABASH is inquiring for one carload of firebox plates.

THE TERMINAL RAILWAY ASSOCIATION OF ST. LOUIS is inquiring for 750 kegs of spikes.

THE CHICAGO, BURLINGTON & QUINCY has postponed until August 18 the taking of bids for 900 tons of structural steel for its new freight house at Chicago.

THE MISSOURI PACIFIC is inquiring for 400,000 tie plates for 75, 85 and 90 lb. rails, amounting to about 2,000 tons, and 100 tons of miscellaneous structural material.

• • • •



A Heavy Embankment Under Construction for the South African Railways

Supply Trade News

THE PAWLING & HARNISCHFEGER COMPANY, Milwaukee, Wis., manufacturers of excavators, cranes and machine tools, has appointed the Laughlin Barney Machinery Company, Pittsburgh, Pa., to represent it in western Pennsylvania and eastern Ohio as sales agents for the company's horizontal boring, drilling and milling machines.

THE ANNISTON ELECTRIC STEEL CORPORATION, Anniston, Ala., is offering for rent or lease its car shop consisting of a frame building 100 ft. by 530 ft. with open sides with a separate storage building 50 ft. by 145 ft. for lumber and materials. Owing to the expansion of the company's two cast steel and gray iron foundries, it has been decided to discontinue the manufacture and repair of freight cars and concentrate all of the company's efforts in future to its foundry business.

H. W. JOHNSTON and A. C. STEINMETZ have been appointed service engineers of the Franklin Railway Supply Company, Inc., New York City. Mr. Johnston was formerly supervisor of machinery and tools of the Delaware, Lackawanna & Western and later in the service of the Baltimore & Ohio, reporting to the general superintendent of motive power, and Mr. Steinmetz was formerly an engineman on the Cleveland, Cincinnati, Chicago & St. Louis, who also served as a member of the Board of Locomotive Engineers.

The co-partnership of Robert W. Hunt & Company, Chicago, on July 2, was incorporated under the name of Robert W. Hunt Company and the officers are now as follows: Jno. J. Cone, president, D. W. McNaugher, vice-president and treasurer, C. B. Nolte, vice-president and general manager, W. A. Gresens, secretary and assistant treasurer. The board of directors includes the above officers, also Luther V. Rice and J. C. Ogden. The official personnel of the corporations 20 domestic and 8 foreign, or international offices, remains unchanged.

John Brunner assistant inspecting engineer of the Illinois Steel Company, with headquarters at Chicago, has been promoted to manager of the newly created department of metallurgy and inspection, with the same headquarters, instead of inspecting engineer, as reported in the *Railway Age* of July 28. R. G. Glass has been appointed assistant manager in charge of the bureau of investigation, and F. S. Crane has been appointed assistant manager in charge of the bureau of inspection of the department of metallurgy and inspection, both with headquarters at Chicago.

F. P. Hamilton, vice-president, general manager, and sales manager of the Creosoted Materials Company, Inc., with headquarters at New Orleans, La., has been elected president, succeeding R. S. Manley who has resigned to become president of the Texas Creosoting Company of Orange, Tex. D. E. Roach, secretary and treasurer, has resigned to become secretary and treasurer of the Texas Creosoting Company. In the future, the Creosoted Materials Company, Inc., will sell the creosoted materials manufactured by the Southern Creosoting Company, Ltd., of Slidell, La.; the Texas Creosoting Company, of Orange, Tex., and others.

THE KETTLE RIVER TREATING COMPANY has been incorporated in Illinois to acquire control and operate the Madison, Ill., treating plant of the Kettle River Company of Minneapolis. While the stock of the new corporation is practically all owned by the Western Tie & Timber Company, St. Louis, Mo., the Kettle River Treating Company will be operated as a separate corporation, treating ties for railways, other tie companies and other purchasers. No change has been made in the management or personnel of this plant which is one of the largest in the country, having four cylinders. It is provided with a modern adzing and boring machine and has recently installed a large paving block mill.

Locomotive Shipments and Orders on Hand

The following table was prepared by the Department of Commerce showing July shipments of locomotives from the principal manufacturing plants, based on reports received by the Bureau of the Census from the individual establishments:

	LOCOMOTIVES			Seven months' total January to July	
	July, 1923	June, 1923	July, 1922	1923	1922
Shipments:					
Domestic	211	221	122	1,543	342
Foreign	28	11	6	101	148
Total	239	232	128	1,644	490
Unfilled orders (end of month):					
Domestic	1,652	1,854	712	...	...
Foreign	86	104	99	...	...
Total	1,738	1,958	811	...	...

Trade Publications

RECORDING WIND VELOCITIES.—The Esterline-Angus Company, has issued Bulletin No. 623 giving a detailed description of the anemometers manufactured by that company for indicating and recording the velocity of winds. These instruments are of particular application to high bridges and other structures whose use becomes dangerous at times of high winds. In addition to a detailed description of the instrument, considerable attention is given to discussions of the advantages of this equipment under various circumstances.

LUBRICATION.—A comprehensive, non-technical discussion of lubrication is afforded in a small 52-page booklet recently issued by the Dearborn Chemical Company, Chicago. This booklet will be of considerable assistance to the purchaser of lubricating oils and greases in deciding which grades will be most effective in developing maximum power equipment efficiency. The fact is emphasized that first cost should not be the only consideration in choosing lubricating oils and greases. Good quality is vital in order that the quantities used may be reduced to a minimum and also the losses due to friction. An interesting discussion of wet and dry steam cylinder lubrication is given. There are also chapters on steam turbine,—uniflow engine—and air compressor lubrication. The closing chapter contains valuable information regarding laboratory control and methods of testing lubricants.

OIL STORAGE SYSTEMS.—An attractively prepared bulletin containing 49 8-in. by 10-in. pages devoted to oil storage systems has been issued by S. F. Bowser & Company, Inc., Fort Wayne, Ind. This bulletin is intended primarily for reference by railroad men who have to deal with the pumps, tanks and devices used in storing or handling oils, gasoline and other liquids. Clear cut illustrations in color accompanied by appropriate descriptive data are given of various parts of the equipment, including agitators, agitator tanks, barrel-filling equipment, carload storage tanks, gravity filling devices, measuring systems, oil pumps, mixing tanks, self-measuring pumps, signal oil pumps and out-pits, and many others. Several interesting illustrations are included of oil supply cars which are now in satisfactory service, effecting important economies in handling and supplying oils to outlying points. The bulletin explains the advantages of Bowser equipment in economy, convenience, safety, dependability and long service.

THE NEW JERSEY SUPREME COURT holds that proof that a passenger's foot, as he was alighting at a platform, came in contact with a small electrical fuse which rolled under his foot and threw him to the platform, resulting in an injury, without proof that the railroad company or its servants were responsible for its presence, or that it had been there long enough to charge the company with notice of it, coupled with the fact that such fuses are purchasable by any one where electrical supplies are sold, does not permit the inference that its presence on the platform was due to the company's negligence for which an action would lie.—*Maphet v. Hudson & Manhattan (N. J.), 119 Atl. 777.*

Railway Construction

ATCHISON, TOPEKA & SANTA FE.—This company is calling for bids for the construction of a new tin and pipe shop at San Bernardino, Cal. The construction of this building will be the first step in the extension of the terminal facilities at San Bernardino, to be erected at a cost of approximately \$2,000,000 during the next two years.

CHICAGO, BURLINGTON & QUINCY.—This company has awarded a contract to the Graver Corporation, East Chicago, Indiana, for the erection of a 15,000-gallon-per-hour capacity water softener at Scotts Bluff, Nebraska.

ILLINOIS CENTRAL.—The Interstate Commerce Commission has issued a certificate authorizing the Southern Illinois & Kentucky to build a line from Edgewood to Metropolis, Ill., 123.7 miles, with a branch from Akin to a connection with the Benton Southern, 7 miles; authorizing the Chicago, St. Louis & New Orleans to build a line from Fulton, Ky., to a connection with the Paducah & Illinois near Paducah, Ky., and authorizing the Illinois Central to acquire and operate the line of the Southern Illinois & Kentucky and to acquire by lease the line to be built by the Chicago, St. Louis & New Orleans.

ILLINOIS CENTRAL.—This company has awarded a contract to the Howlett Construction Company, Moline, Ill., for the construction of a 500-ton, reinforced concrete coaling station at Central City, Ky., reported in the *Railway Age* of December 30, 1922.

LEHIGH & NEW ENGLAND.—This company is contemplating the erection of a 14-stall roundhouse at Tamaqua, Pa.

MISSISSIPPIAN.—This company has applied to the Interstate Commerce Commission for a certificate authorizing the construction of a line from Amory to Fulton, Miss., approximately 25 miles. John T. Cochrane, Mobile, Ala., is president of the company.

OREGON SHORT LINE.—The Interstate Commerce Commission has issued a certificate authorizing the construction of a line from a branch line near Nampa, Idaho, to a connection with its Boise branch, 2.66 miles.

PHILADELPHIA & READING.—This company has awarded a contract for the furnishing and erection of three signal bridges in connection with the new terminal of its seashore lines at Camden, N. J., to the McClintic Marshall Company of Pottstown, Pa. The company has also awarded a contract for the construction of a concrete retaining wall along Front street, Bridgeport, Pa., to C. P. Bower. This wall will be approximately 210 feet long and will have an average height of from 13 ft. 6 in., to 15 ft. 6 in., above foundations.

ST. LOUIS SOUTH WESTERN.—This company will erect a 200,000 gallon capacity oil storage tank at Jonesboro, Arkansas.

SOUTHERN PACIFIC.—This company will replace the wooden piers supporting its bridge over the Kern river, near Bakersfield, Calif., with concrete cylinder supports at a cost of approximately \$18,000.

SOUTHERN PACIFIC.—This company has been granted permission by the Railroad Commission of California to construct a new combination freight and passenger station at Glendale, California, to cost approximately \$50,000.

WYOMING NORTH & SOUTH.—The work of construction of this line, the largest new line project which has been attempted for a number of years, has been held up on account of difficulty in obtaining materials. Five hundred men engaged in grading work have been laid off, but the steam shovel outfits will continue at work until winter. The proposed line of the company is over 300 miles long and extends from Casper, Wyoming, to Miles City, Montana.

Railway Financial News

BUFFALO & SUSQUEHANNA.—*Annual Report.*—The annual report for the year ended December 31, 1922 shows a net income of \$729,352 as compared with \$197,157 in 1921. The income statement compares as follows:

	1922	Increase or Decrease
Operating revenues:		
Freight	\$1,563,094	-\$362,545
Passenger	64,702	-14,997
Total (including other)	1,676,044	-376,738
Operating expenses:		
Maintenance of way and structures	384,298	-74,919
Maintenance of equipment	546,460	-439,300
Traffic	25,623	-5,716
Transportation	607,387	-143,210
General	112,321	-12,693
Total operating expenses	1,676,088	-675,838
Net operating revenue	Def. 44	299,100
Tax accruals	73,872	40,282
Operating income	Def. 74,050	258,767
Gross income	990,294	528,829
Total deductions from gross income	260,942	-3,367
Net income	729,352	532,195
Income applied to sinking and other reserve funds	38,091	4,364
Income balance	691,261	527,831

CADDY & CHOCTAW.—*Authorized to Abandon Line.*—The Interstate Commerce Commission has issued a certificate authorizing the abandonment as to interstate commerce of that portion of this company's line from Rosboro to Cooper, Ark., 12.75 miles.

CAROLINA, CLINCHFIELD & OHIO.—*Hearing on Lease Postponed.*—The Interstate Commerce Commission has postponed the date set for the hearing on the application of the Atlantic Coast Line and the Louisville & Nashville for authority to acquire control of this property by lease, from September 10 to September 24, at Washington before Director Charles D. Mahaffie of the commission's bureau of finance.

COLUMBUS & GREENVILLE.—*Sold.*—This road, extending from Columbus, Miss., to Greenville, 168 miles, was sold on August 8 to George Y. Banks, of Columbus, for \$35,000, subject to a bonded indebtedness of \$5,275,000. The road has been in receivership since June 4, 1921.

CINCINNATI NORTHERN.—*Annual Report.*—The annual report for the year ended December 31, 1922 shows a net income before dividends of \$265,252 as compared with \$562,488 in 1921. A selection of the principal items in the income account follows:

	1922	1921	Increase or Decrease
Miles operated	245	245	
Railway operating revenues	\$3,505,287	\$3,757,713	-\$252,426
Railway operating expenses	2,697,736	2,642,291	55,445
Net from railway operations	807,551	1,115,422	-307,871
Railway tax accruals	183,851	274,948	-91,097
Railway operating income	623,084	840,448	-217,364
Net railway operating income	348,557	702,255	-353,698
Gross income	374,577	694,031	-319,454
Total deductions from gross income	109,326	131,543	-22,217
Net income	265,252	562,488	-297,237
Dividends declared (3 per cent in 1922; 5 per cent in 1921)	90,000	150,000	-60,000
Surplus for the year	175,252	412,488	-237,237

DENVER & RIO GRANDE WESTERN.—*Deposit of Bonds.*—Kuhn, Loeb & Co. and the Equitable Trust Company, reorganization managers, have issued a notice to holders of the Denver & Rio Grande Western first and refunding mortgage 5 per cent gold bonds and 7 per cent cumulative adjustment mortgage gold bonds of the Denver & Rio Grande to the effect that a large majority of the holders of these issues have assented to the plan and agreement for the reorganization of the Denver & Rio Grande Western. The time for the deposit of these securities has been extended to the close of business September 7. The plan of reorganization is before the Interstate Commerce Commission and the mortgages are in process of foreclosure. It is therefore important, the notice states, that bondholders should deposit their bonds immediately so that the reorganization managers may represent substantially all of the bonds dealt with by the plan. The Bankers Trust Company, the Farmers Loan & Trust Company, and the American Exchange National Bank are depositaries.

DENVER & RIO GRANDE WESTERN.—*Hearing on Application for Authority to Issue Securities.*—The Interstate Commerce Com-

mission has announced a hearing on this company's application for authority to issue securities, to be held by Director Mahaffie of the bureau of finance at Washington on September 10.

HOCKING VALLEY.—*Equipment Trust Certificates Authorized.*—The Interstate Commerce Commission has authorized this company to assume obligation and liability in respect of \$4,020,000 of 5 per cent equipment trust certificates to be issued by the Union Trust Company and to be sold at not less than 94.843.

ILLINOIS CENTRAL.—*Authorized to Assume Obligation.*—The Interstate Commerce Commission has authorized this company to assume obligation and liability in respect of \$4,571,000 of first mortgage bonds of the Paducah & Illinois. The Southern Illinois & Kentucky has also been authorized to issue \$40,000 of common stock to be sold at par to the Illinois Central.

Railroad Administration Settlements

The United States Railroad Administration reports the following final settlements, and has paid out and received from the several roads the following amounts:

Central Indiana Railway Company.....	\$45,000
Central New England Railway Company.....	90,000
Cincinnati Northern Railroad Company paid Director General.....	100,000
Talbotton Railroad Company paid Director General.....	600
St. Louis Southwestern Railway Company paid Director General.....	700,000

Short Lines

Massena Terminal Railroad Company.....	3,200
Garden City Western Railway Company.....	3,500
The Great Western Railway Company.....	15,000
The Columbia & Nebelcm River Railroad Company.....	1

Dividends Declared

Buffalo, Rochester & Pittsburgh.—Common, 2 per cent; preferred, 3 per cent; both payable August 15 to holders of record August 8.

Canadian Pacific.—Common, 2½ per cent, quarterly; preferred, 2 per cent, semi-annually; both payable October 1 to holders of record August 31.

Chestnut Hill Railroad.—1½ per cent, quarterly, payable September 4 to holders of record August 20.

Delaware & Bound Brook.—2 per cent; quarterly, payable August 20 to holders of record August 10.

Pennsylvania Railroad.—1½ per cent, quarterly, payable August 31 to holders of record August 1.

Pittsburgh; Youngstown & Ashtabula.—Preferred, 1¼ per cent, payable September 1 to holders of record August 20.

St. Louis Southwestern.—Preferred, 1¼ per cent, quarterly, payable October 1 to holders of record September 15.

Southern Pacific.—1½ per cent, quarterly, payable October 1 to holders of record August 31.

Union Pacific.—Common, 2½ per cent, quarterly; preferred, 2 per cent, semi-annually; both payable October 1 to holders of record September 1.

Trend of Railway Stock and Bond Prices

	August 14	Last Week	Last Year
Average price of 20 representative rail-way stocks	58.68	58.89	70.61
Average price of 20 representative rail-way bonds	82.49	82.18	88.65



In Drivdalen on the Dovre Railway, Norway

Railway Officers

Executive

F. B. Seymour, general manager of the Green Bay & Western, the Keweenaw, Green Bay & Western, and the Ahnapee & Western, with headquarters at Green Bay, Wis., has been elected president and general manager with the same headquarters succeeding J. A. Jordan, whose death on August 1, was reported in the *Railway Age* of August 11.

Financial, Legal and Accounting

A. K. Atkinson, assistant auditor of the Wabash, with headquarters at St. Louis, Mo., has been promoted to assistant controller, with the same headquarters. **A. B. Twyman**, auditor of capital expenditures, with headquarters at St. Louis, has been promoted to assistant auditor, succeeding Mr. Atkinson. **E. C. Mann** has been appointed auditor of capital expenditures with headquarters at St. Louis, succeeding Mr. Twyman.

Operating

W. J. Smith, general agent of the Chicago & Northwestern at Omaha, Neb., has been appointed district manager, Car Service Division, American Railway Association, with office at Omaha.

C. H. Smith, superintendent of the Green Bay & Western, the Keweenaw, Green Bay & Western, and the Ahnapee & Western, with headquarters at Green Bay, Wisconsin, has been promoted to general superintendent, with the same headquarters.

L. F. De Ramus, superintendent of the Southern with headquarters at Macon, Ga., has been transferred to a similar position at Greensboro, N. C., succeeding **R. L. Avery** who has been transferred to the Norfolk division with headquarters at Norfolk, Va.

J. E. Fairhead, superintendent of the Delaware & Hudson with headquarters at Carbondale, Pa., has been transferred to the Saratoga division, succeeding R. J. McCarty, Jr., resigned. **C. A. Morgan** has been appointed superintendent at Carbondale succeeding Mr. Fairhead.

H. A. Sprague has been appointed trainmaster of the Shasta division of the Southern Pacific with headquarters at Duns-muir, Cal., succeeding G. H. Moore who has been assigned to other duties. **E. F. Nassoy** has been appointed trainmaster of the Salt Lake division, with headquarters at Carlin, Utah, succeeding L. P. Hopkins, who has been granted an extended leave of absence.

M. F. Weeks, assistant superintendent of the El Dorado division of the Missouri Pacific with headquarters at El Dorado, Ark., has been transferred to the McGehee division with headquarters at McGehee, Arkansas. **Thomas Watson**, trainmaster of the Alexandria division with headquarters at Alexandria, La., has been promoted to assistant superintendent of the El Dorado division with headquarters at El Dorado, Arkansas, succeeding Mr. Weeks.

L. A. Turner, trainmaster of the East Iowa division of the Chicago, Milwaukee & Saint Paul with headquarters at Marion, Iowa, has been promoted to assistant superintendent with headquarters at Perry, Iowa. **A. Dutton**, trainmaster of the West Iowa division with headquarters at Marion, has been transferred to the East Iowa division with the same headquarters succeeding Mr. Turner. The position of trainmaster of the West Iowa division has been abolished. **W. G. Bowen** has been appointed trainmaster of the Twin City Terminal division with headquarters at Minneapolis, Minnesota.

Traffic

E. A. Hynes, general agent in the freight department of the Chicago & Alton, with headquarters at Pittsburgh, Pa.,

has been transferred to Chicago, Ill., succeeding T. J. Shea, whose appointment as assistant general freight agent of the Great Northern, with headquarters at Chicago, was reported in the *Railway Age* of June 23.

O. Collins, district passenger agent of the Chicago, Rock Island & Pacific, with headquarters at Wichita, Kan., has been promoted to division passenger agent, with headquarters at Oklahoma City, Okla., succeeding H. H. Hunt, whose promotion to assistant general passenger agent, with headquarters at Little Rock, Ark., was reported in the *Railway Age* of July 31. **C. E. Bascom**, city passenger agent at Topeka, Kan., has been promoted to district passenger agent, with headquarters at Wichita, succeeding Mr. Collins.

Mechanical

F. E. Hillman, has been appointed assistant road foreman of engines of the Northern Division, of the Chicago Great Western with headquarters at Rochester, Minn.

S. H. Bray has been appointed road foreman of engines of the San Joaquin division of the Southern Pacific with headquarters at Bakersfield, Cal., succeeding C. W. Jones, who has been assigned to other duties.

J. E. O'Brien, manager of the mechanical department of the Seaboard Air Line, will hereafter be chief of motive power and equipment. Mr. O'Brien will, as heretofore, report to the vice-president and general manager; also to the president.

Engineering, Maintenance of Way and Signaling

H. R. Clarke, engineer maintenance of way of the Nebraska district of the Chicago, Burlington & Quincy with headquarters at Lincoln, Neb., has had his jurisdiction extended over the Wyoming district, relieving **R. G. Aylsworth**, who has been granted leave of absence. **H. C. Murphy**, division engineer and roadmaster of the Quincy, Omaha & Kansas City, with headquarters at Kansas City, Mo., has been promoted to assistant engineer maintenance of way of the Wyoming district of the Burlington, with headquarters at Alliance, Neb.

Obituary

E. W. La Beaume, general passenger agent of the St. Louis Southwestern, with headquarters at St. Louis, Mo., died in that city on August 7.

George L. Harvey, who was an early designer of steel cars and the inventor of the Harvey friction draft gear spring and also of a photographic apparatus, died in Chicago on August 13.

Thomas Gannon, vice-president of the Sharp & Fellows Construction Company, Los Angeles, Cal., died in that city on August 12. Mr. Gannon was formerly a roadmaster on the Chicago, Burlington & Quincy. During his career as a railroad contractor, he had charge of the construction of the Belen, New Mexico, cut-out on the Atchison, Topeka & Santa Fe, and of the construction of 65 miles of second track on the same road near Kingman, Ariz.

Henry B. Cartwright, formerly district engineer of the Seaboard Air Line with headquarters at Jacksonville, Fla., whose death was announced in the *Railway Age* of August 4, page 230, was born in Weeksville, North Carolina, December 17, 1883, and took a full course in civil engineering at North Carolina State College at Raleigh, N. C., in 1905. He was in the service of the Seaboard Air Line about 16 years, serving as inspector, assistant engineer, etc., until he reached the position of district engineer in charge of the Jacksonville, Florida, office, which embraced territory in civil engineering lines in that district. During the cessation of work in 1921 Mr. Cartwright was furloughed and for many months had been seriously ill at his home in Jacksonville, where he died July 14. At this time the district engineer's office at Jacksonville will not be reopened and no district engineer will be appointed at that place.